Rivne State University of the Humanities
Philological Faculty
Department of Theory and Practice of Foreign Languages and Teaching Methodology

Diploma research of the educational qualification level «Bachelor Degree»

«The process of studying English using principles of Cognitive Psychology»

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Rivne – 2025

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Summary

Dzhugan Daryna (2025). The process of studying English using principles of Cognitive Psychology. Diploma research of the educational qualification level «Bachelor Degree». Rivne State University of the Humanities. *The manuscript*.

The object of the research is the process of perception and understanding foreign language texts by adolescents in the paradigm of Cognitive Psychology.

The subject of this research is the influence of linguistic means on the implementation of Cognitive abilities in the paradigm of providing a cognitive model of teaching at school.

The purpose of this research is to identify and to provide theoretical justification of Cognitive Psychology and in its paradigm to show the most effective methods of understanding and perception of foreign language literary texts by adolescents.

To achieve this goal, the following tasks must be solved:

1) to determine the linguistic means of introducing the paradigm of Cognitive Psychology;

2) to study the specifics of Cognitive Psychology according to providing a cognitive model of teaching at school;

3) to substantiate the influence of the development of Cognitive Psychology to develop their cognitive abilities, to show, how cognitive abilities influence the understanding foreign-language texts by adolescents;

4) to characterize linguistic means of semantization of unknown words and methods of effective activity with the texts as the mechanisms of functioning of Cognitive Psychology.

The scientific novelty of the research is that the definition of “Pragmatic Psychology” was definitely and scientifically substantiated, linguistic means of its implementation, *were outlined*.

Firstly, Pragmatic Psychology can be shown as the independent interdisciplinary field of knowledge that closely interacts with Linguistic Pragmatics and Cognitive Psychology. We *proved* that Pragmatic Psychology in its scientific paradigm focused on two basic, intertwined concepts – the meaning and the activity. *It was firstly shown* that Pragmatic Psychology is the core of a purely activity approach according to people's speech, a global analysis of purposeful human use of sound structures, such as segmental and prosodic, tokens, word forms, schemes, phrases and sentences, different types of elementary speech acts and their complexes, communicative moves as chains, discourses of different types, etc. Thus, having had such a wide field of scientific research, Pragmatic Psychology is actualized on two levels of its analysis – a superficial (symbolic) level and a deep (cognitive-semantic) one. Thus, *we showed*, that Pragmatic Psychology implied the subjective-activity space of the addressee (his/her pragmatic attitudes, deixis, features of quasi-communication), performativity, the theory of speech acts, various explicit and implicit ways of organizing the language code by the subjects of communication (press position, implication, implicative scripts, maxims of cooperative interaction of partners of communication, indirect speech acts, conditions of productivity and success of the process of communication in general); theoretical and applied aspects of relevance; psycholinguistic principles and mechanisms of communication; some aspects of the theory of speech interaction and conversational speech.

The theoretical significance of the research is that in it:

a) a system of characteristics of Cognitive Psychology was developed which allows to analyze the degree of the development of discourse of pupils in the educational process;

b) the significance of these characteristics at the English lessons was determined;

c) there were identified the most appropriate pedagogical influences of the teacher on pupils in order to develop the Cognitive abilities of schoolchildren.

The practical significance of the research was determined by the possibility of using obtained results in order to develop the ability of discourse of pupils at the lessons of a foreign language, as well as at other subjects of the humanitarian cycle. In the research we developed ways of development of Cognitive abilities of schoolchildren in the paradigm of providing a cognitive model of teaching at school can find their use in the practice of teachers of secondary schools in order to enhance the thinking of adolescents, promote diverse development of their personality.

Key words: Cognitive Psychology, a cognitive model of teaching, linguistic means, Cognitive abilities, implementation, reading, the educational process.

Джуган Дарина Василівна (2025). Процес вивчення англійської мови з використанням принципів когнітивної психології. Дипломна робота освітньо-кваліфікаційного рівню «Бакалавр». Рівненський державний гуманітарний університет. *Рукопис*.

Об’єктом дослідження є процес сприйняття та розуміння іншомовних текстів підлітками в парадигмі когнітивної психології.

Предметом цього дослідження є вплив лінгвістичних засобів на реалізацію когнітивних здібностей учнів у парадигмі забезпечення когнітивної моделі навчання в школі.

Метою цього дослідження є визначення та теоретичне обґрунтування когнітивної психології та в її парадигмі показати найефективніші методи розуміння та сприйняття іншомовних художніх текстів підлітками.

Для досягнення цієї мети необхідно було вирішити такі завдання:

1) визначити лінгвістичні засоби впровадження парадигми когнітивної психології в процес шкільного навчання;

2) дослідити специфіку когнітивної психології відповідно до моделювання авторської когнітивної моделі навчання в школі;

3) обґрунтувати вплив розвитку когнітивної психології на розвиток когнітивних здібностей учнів, показати, як саме когнітивні здібності впливають на розуміння іншомовних текстів підлітками;

4) охарактеризувати лінгвістичні засоби семантизації невідомих слів та методи ефективної діяльності з текстами як механізми функціонування когнітивної психології.

Наукова новизна дослідження полягає в тому, що визначення поняття «Прагматична психологія» було чітко та науково обґрунтовано, а також окреслено лінгвістичні засоби його теоретичної та практичної реалізації.

По-перше, прагматичну психологію ми вперше показали як самостійну міждисциплінарну галузь знань, яка тісно взаємодіє з лінгвістичною прагматикою та когнітивною психологією. Ми довели, що прагматична психологія у своїй науковій парадигмі зосереджена на двох основних, взаємопов’язаних поняттях – значенні та діяльності. Вперше було показано, що прагматична психологія є ядром суто діяльнісного підходу щодо людського мовлення, глобального аналізу цілеспрямованого використання людиною звукових структур, таких як сегментні та просодічні, лексеми, словоформи, схеми, фрази та речення, різні типи елементарних мовленнєвих актів та їх комплексів, комунікативні рухи як ланцюги, дискурси різних типів тощо. Таким чином, маючи таке широке поле наукових досліджень, прагматична психологія актуалізується на двох рівнях свого аналізу – поверхневому (символічному) та глибинному (когнітивно-семантичному). Таким чином, ми показали, що прагматична психологія передбачає суб’єктивно-діяльнісний простір адресата (його/її прагматичні настановлення, дейксис, особливості квазікомунікації), перформативність, теорію мовленнєвих актів, різні експліцитні та імплікатні способи організації мовного коду суб'єктами комунікації (пресова позиція, імплікація, імплікативні сценарії, максими кооперативної взаємодії партнерів комунікації, непрямі мовленнєві акти, умови продуктивності та успішності процесу комунікації загалом); теоретичні та прикладні аспекти релевантності; психолінгвістичні

принципи та механізми комунікації; деякі аспекти теорії мовленнєвої взаємодії та розмовного мовлення.

Теоретична значущість дослідження полягає в тому, що в ньому: а) розроблено систему характеристик когнітивної психології, яка дозволяє аналізувати ступінь розвитку дискурсу учнів у навчальному процесі; б) визначено значення цих характеристик на уроках англійської мови; в) визначено найбільш доцільні педагогічні впливи вчителя на учнів з метою розвитку когнітивних здібностей школярів.

Практична значущість дослідження визначалася можливістю використання отриманих результатів для розвитку дискурсу учнів на уроках іноземної мови, а також на інших предметах гуманітарного циклу. У дослідженні розроблені шляхи розвитку когнітивних здібностей школярів у парадигмі забезпечення когнітивної моделі навчання в школі можуть знайти своє використання в практиці вчителів загальноосвітніх навчальних закладів з метою активізації мислення підлітків, сприяння різнобічній розвитку їхньої особистості.

Ключові слова: когнітивна психологія, когнітивна модель навчання, лінгвістичні засоби, когнітивні здібності, реалізація, читання, навчальний процес.

Introduction

Relevance of the problem of studying English using principles of Cognitive Psychology. The contemporary world cannot be imagined without modern technologies, without communications and communicative paradigm. In the context of the convergence of many countries of the world the problem of international communication and information in a great degree exchange. Therefore, the study and understanding of a foreign language is one of the main factors of the development, mutual understanding and integration of people into a modern globalized world. The problem of learning the comprehension of foreign literature, recently, is very actual, both in our country and abroad. Interest to this problem is quite understandable, since one of the main tasks of studying a foreign language of specialists of different profiles is the creation of their automatic reading skills with the direct perception of information from literature having been read.

Modern techniques make the study of a foreign language as a study of linguistic activity. The practical goal of teaching and learning a foreign language is to master the language skills and abilities that provide pupils with the opportunity to engage in the process of linguistic communication. According to the program, the ultimate goal of learning a foreign language at any secondary school is to read the original literature in the specialty for obtaining actual information and oral communication in the amount of material having been learned.

However, it should be emphasized that none of the foreign language courses does not even involve the partial assimilation of the whole vocabulary of the given language. It is practically impossible, since it is impossible to master all the knowledge and experience accumulated by humanity, which reflects the dictionary. The dictionary is constantly replenished with new words and meanings as the knowledge and experience grows both for each individual person and for all the speakers of the given language. Therefore, the problem of understanding foreign-language texts is very relevant in our time. Consequently, more and more attention

should be paid to the development of effective mechanisms for better understanding and comprehension of foreign-language literary texts that do not involve the preliminary study of linguistic material. But, unfortunately, the problem of discourse in the paradigm of providing a cognitive model of teaching at school is not sufficiently studied in the scientific literature. Therefore, this problem is chosen as the subject of this research.

According to the relevance of the problem of studying English using principles of Cognitive Psychology the topic of our research is: **"The process of studying English using principles of Cognitive Psychology"**.

The object of the research is the process of perception and understanding foreign language texts by adolescents in the paradigm of Cognitive Psychology.

The subject of this research is the influence of linguistic means on the implementation of Cognitive abilities in the paradigm of providing a cognitive model of teaching at school.

The purpose of this research is to identify and to provide theoretical justification of Cognitive Psychology and in its paradigm to show the most effective methods of understanding and perception of foreign language literary texts by adolescents.

The hypothesis of the research: the teacher's consideration of linguistic means of introducing Cognitive abilities will influence the perception and understanding of foreign-language texts by adolescents because of stimulating their cognitive processes and cognitive abilities.

To achieve this goal, **the following tasks** must be solved:

1) to determine the linguistic means of introducing the paradigm of Cognitive Psychology;

2) to study the specifics of Cognitive Psychology according to providing a cognitive model of teaching at school;

3) to substantiate the influence of the development of Cognitive Psychology to develop their cognitive abilities, to show, how cognitive abilities influence the understanding foreign-language texts by adolescents;

4) to characterize linguistic means of semantization of unknown words and methods of effective activity with the texts as the mechanisms of functioning of Cognitive Psychology.

The theoretical and methodological background of the research consists of studying the philological literature on studying the linguistic means of introducing the paradigm of Cognitive Psychology (Mateos, Guevara Erra, Wennberg & Perez Velazquez, 2018); teaching reading at the lessons of a foreign language at school (Mykhalchuk & Ivashkevych Er., 2021); to study the specifics of Cognitive Psychology according to providing a cognitive model of teaching at school (Hogan, Adlof & Alonzo, 2014); to study informative units of speech (Dubovyk, Mytnyk, Mykhalchuk, Rashkovska & Nabochuk, 2022); psychological bases of reading instructions (Ehri, Nunes, Willows, Schuster, Yaghoub-Zadeh & Shanahan, 2001); psycholinguistic aspects of studying the text (Mykhalchuk, Levchuk, Ivashkevych Er., Yasnohurska & Cherniakova, 2021); to study the influence of the development of Cognitive Psychology to develop their cognitive abilities, to show, how cognitive abilities influence the understanding foreign-language texts by adolescents (Mykhalchuk & Bihunova, 2019); to characterize linguistic means of semantization of unknown words and methods of effective activity with the texts as the mechanisms of functioning of Cognitive Psychology (Onufriieva & Ivashkevych Ed., 2021); to study psychological mechanisms of understanding the text (Phani Krishna, Arulmozi, Shiva Ram & Mishra, 2020).

In the process of solving these tasks, **the following research methods** were used:

- studying and analyzing linguistic, psychological and methodological literature on research issues;
- the method of observation;
- an experiment for analysis of the influence of psycho-linguistic means on the understanding of adolescents foreign language texts;
- method of semantic analysis of discursive thinking;
- methods of mathematical processing of data.

Reliability and probability of the results of the research were provided by the methodological substantiation of the initial positions, the conformity of the methods of studying its purpose and objectives, the combination of qualitative and quantitative analyzes of experimental data.

The scientific novelty of the research is that the definition of "Pragmatic Psychology" was definitely and scientifically substantiated, linguistic means of its implementation, *were outlined*.

Firstly, Pragmatic Psychology can be shown as the independent interdisciplinary field of knowledge that closely interacts with Linguistic Pragmatics and Cognitive Psychology. We *proved* that Pragmatic Psychology in its scientific paradigm focused on two basic, intertwined concepts – the meaning and the activity. *It was firstly shown* that Pragmatic Psychology is the core of a purely activity approach according to people's speech, a global analysis of purposeful human use of sound structures, such as segmental and prosodic, tokens, word forms, schemes, phrases and sentences, different types of elementary speech acts and their complexes, communicative moves as chains, discourses of different types, etc. Thus, having had such a wide field of scientific research, Pragmatic Psychology is actualized on two levels of its analysis – a superficial (symbolic) level and a deep (cognitive-semantic) one. Thus, *we showed,* that Pragmatic Psychology implied the subjective-activity space of the addressee (his/her pragmatic attitudes, deixis, features of quasi-communication), performativity, the theory of speech acts, various explicit and implicit ways of organizing the language code by the subjects of communication (press position, implication, implicative scripts, maxims of cooperative interaction of partners of communication, indirect speech acts, conditions of productivity and success of the process of communication in general); theoretical and applied aspects of relevance; psycholinguistic principles and mechanisms of communication; some aspects of the theory of speech interaction and conversational speech.

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a) a system of characteristics of Cognitive Psychology was developed which allows to analyze the degree of the development of discourse of pupils in the educational process;

b) the significance of these characteristics at the English lessons was determined;

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The practical significance of the research was determined by the possibility of using obtained results in order to develop the ability of discourse of pupils at the lessons of a foreign language, as well as at other subjects of the humanitarian cycle. In the research we developed ways of development of Cognitive abilities of schoolchildren in the paradigm of providing a cognitive model of teaching at school can find their use in the practice of teachers of secondary schools in order to enhance the thinking of adolescents, promote diverse development of their personality.

Approbation and implementation of the research results into the practice of general secondary school was carried out through discussion at the pedagogical councils of Rivne Lyceum "Harmony" of the city of Rivne, meetings of the Department of Theory and Practice of Foreign Languages and Teaching Methodology of Rivne State University of the Humanities, reported at the conferences on modern problems of teaching methods of foreign languages (Rivne, 2025). One article was published:

1. **Dzhugan Daryna (2023). The influence of Cognitive processes in the paradigm of school learning the English language.** Матеріали VI Всеукраїнської науково-практичної конференції здобувачів вищої освіти та молодих вчених *«Актуальні проблеми сучасної іноземної філології» (20 травня 2025 року).* Рівне: РДГУ. С. 368–370. С. 72–76.

The structure of the research for Bachelor Degree includes the introduction, 2 Chapters, Conclusions, Summary, the list of Sources, Appendixes.

Chapter I.
Principles of Cognitive Psychology and use of them at the English lessons

1.1. The influence of Cognitive processes in the paradigm of English language school learning

Cognitive processes are the foundation of our mental capabilities, influencing how we perceive, think, remember, and learn. These processes are fundamental to our interaction with the world and our understanding of it. Human cognition is driven by a multifaceted interplay of cognitive processes. These well-defined mental operations govern information processing, encompassing the initial sensory perception of environmental stimuli to the complex integration and interpretation leading to decision-making. This dynamic system reflects the intricate architecture of the human brain and its remarkable capacity for adaptive response to the world.

The synergy between English language education and cognitive science illuminates the cognitive core of language learning. This intricate network of factors provides a valuable theoretical framework for a more thorough understanding of how languages are acquired. At the heart of this process lies the critical role of cognitive mechanisms in individual language acquisition. These mechanisms involve the learner's ability of perception, analysis, and processing of external linguistic information, encompassing various levels like phonetics, vocabulary, grammar, and semantics.

This cognitive mechanism extends beyond the mere acquisition of basic linguistic elements. It also encompasses the development of fluency and accuracy in language use. Furthermore, memory plays a critical role in the learning process. According to the scholar, long-term memory is particularly significant for achieving fluency, as it serves as a vast repository of linguistic information and experience. In language learning, memory not only facilitates the retention of vocabulary and

grammar rules, but also fosters the development of an intuitive understanding and the ability to apply language effectively. In addition, language perception is another important cognitive foundation of language learning. It involves the process of individuals mastering the sound, shape, meaning, and structure of phonemes, letters, words and sentences (Witkin, 1994).

Language perception serves not only as the foundation for language comprehension and use, but also as a critical factor in the interpretation of phonetics, grammar, and semantics. This convergence of English language education and cognitive science illuminates the cognitive underpinnings of the language processing and learning mechanisms within the learning process itself. By elucidating these core principles, we gain a deeper understanding of the fundamental nature and governing principles of language acquisition.

Furthermore, this knowledge provides a valuable theoretical framework for optimizing English language methodology. Through the application of cognitive science theories and methodologies, we can develop more scientifically sound and effective English teaching strategies, ultimately enhancing student learning outcomes and fostering a heightened interest in the language. English language processing constitutes a complex and intricate cognitive activity, characterized by multi-layered analyses and comprehension (Scrimali, 2008).

At the outset, considering written sentence expression, English language processing entails the progressive construction of morphemes, words or word forms, phrases, and ultimately, sentences. Each morpheme represents the fundamental unit from which words are built, conveying a specific unit of meaning. These words or word forms are then strategically combined to form phrases and sentences, ultimately expressing complete thoughts and conveying specific information. English language processing entails a multi-layered, hierarchical approach, beginning at the fundamental level of phonetics. This initial stage involves the progressive analysis of phonemes, the smallest units of sound that distinguish meaning in a language. Phonemes combine to form syllables, which serve as the building blocks of phonetic words. By recognizing and manipulating these

phonemes and syllables, learners develop the ability to comprehend and produce accurate pronunciation. This intricate process of language processing extends beyond phonetics. It encompasses a multifaceted cognitive activity, integrating analyses of vocabulary, grammar, and semantics. Vocabulary refers to the lexicon, the set of words within a language. Grammar dictates the rules governing word order and sentence structure. Semantics focuses on the meaning conveyed by words and sentences. Through sustained learning and practice, learners can progressively refine their proficiency in these various aspects of language processing. This ongoing way ultimately leads to enhanced comprehension and expression abilities (Mykhalchuk & Ivashkevych Er., 2019).

As researchers consider, the psychological and neural mechanisms of language processing are important areas of researches in Linguistics, Psychology and Neuroscience. Together, they reveal how the brain and psychological processes work together when humans understand and use language. Firstly, psychological mechanisms play a crucial role in language processing. These include multiple aspects such as perception, attention, memory, reasoning, and thinking. When we hear or see a text, the brain at first stage receives and analyses this language information through the perception system. Subsequently, the attention mechanism helps us screen out important information, while the memory system allows us to remember and understand previously learned vocabulary and grammar rules. Reasoning and higher-order thinking mechanisms serve as crucial instruments in unlocking the profound meaning of language. These sophisticated cognitive processes enable us to engage in complex thought and nuanced expression during communication. Meanwhile, neural mechanisms also play a significant role in language processing. Specific regions in the brain, such as Broca's area and Wernicke's area, are responsible for processing language information. Broca's area is mainly responsible for language production and control, while Wernicke's area is involved in language understanding and processing. These brain regions are intricately interwoven by a network of sophisticated neural circuits. This interconnected system facilitates the seamless transmission and efficient processing

of language information. Therefore, the psychological and neural mechanisms of language processing are complex and sophisticated processes that involve the collaborative work of a diverse array of psychological processes and specialized neural structures. By studying these mechanisms by delving into them, we can obtain a better understanding of the nature and laws of language, providing strong support for Language Education and the development of Language Methodology (Hamedi & Pishghadam, 2021).

Cognitive factors and individual differences in language processing are important aspects of research in Linguistics, Psychology, and Cognitive science. They are significant for understanding the differences and performances of diverse individuals in the language processing process. Firstly, cognitive factors play a key role in language processing. Cognitive factors include individuals' psychological processes such as attention, memory, and thinking, which play a crucial role in language understanding, production, and use. For example, attention helps individuals filter out important language information, memory enables individuals to store and recall past language experiences, and thinking allows individuals to understand and analyze complex language structures and meanings. In conclusion, the intricate interplay between cognitive factors and individual learner variability underscores the multifaceted nature of language processing. By delving deeper into these factors and their diverse manifestations across individuals, we gain a more nuanced understanding of the characteristics and performance profiles exhibited during language acquisition, highlighting the transformative impact that quality language education and language methodology can have on educational outcomes and global communication.

The cognitive process of English learning is a complexity that involves multiple stages and levels. This process starts with basic vocabulary and grammar learning and eventually develops into increasing oral expression and reading comprehension skills, ultimately forming comprehensive language proficiency. In the initial stage, learners mainly focus on mastering vocabulary and grammar. By memorizing words, phrases, and basic grammar rules, learners establish the

foundation for language learning. This process is usually carried out through classroom learning, reading textbooks, and using learning tools.

Therefore, the cognitive process of English learning is a complex process involving multiple aspects, requiring learners to make efforts and practise on multiple levels. Through continuous accumulation, practice, and application, learners can gradually improve their English proficiency and achieve comprehensive language proficiency.

1.2. Basic and higher Cognitive processes of the person and their actualizing in studying English

Our brains rely on two fundamental sets of processes governing distinct abilities: basic cognitive processes and higher cognitive processes. These processes are readily distinguishable based on their characteristics. According to the scholars, higher cognitive processes are characterized by their generality (applicable across various situations and tasks), non-automaticity (require deliberate effort and conscious control), mediated memory (involve internal mental processes to retrieve and manipulate information), controlled awareness (allow for conscious monitoring and reflection on our thinking), and constructive thinking (enable us to analyze, reason, solve problems, and form new ideas). Basic cognitive processes, on the other hand, are characterized by their specificity (tailored to specific tasks and stimuli), automaticity (operate unconsciously and without deliberate effort), and unconscious processing (information is processed without awareness). Higher cognitive processes act as a control system, directing and guiding the operation of basic cognitive processes.

As we mentioned before, cognitive processes are the mental operations the brain performs to cultivate income information. It is through the intricate interplay of cognitive processes that the brain transforms sensory information into meaningful knowledge. These well-defined mental operations govern information processing, encompassing initial perception and attention, as well as more complex ones, such

as thinking. Collectively termed cognitive functions, these processes range from foundational aspects like perception and attention to more complex Cognitive processes, such as thinking and reasoning. Every action we undertake, from reading a book to washing dishes or cycling, relies on this dynamic interplay of cognitive processes.

Cognitive processes are derived into two types named basic and higher. Basic cognitive processes constitute the system with information processed and integrated:

1. **Perception** consists of the initial stage of information processing, encompassing the active capture, interpretation, and construction of meaning from sensory stimuli. This fundamental cognitive function enables us to transform raw sensory data received through our various organs (eyes, ears, nose, tongue, and skin) into a coherent understanding of the world around us.
2. **Attention.** During information processing, humans actively direct their attention and cognitive resources to specific stimuli.
3. **Information processing** facilitates the transformation of captured information into a compiled format.
4. **Memory.** The system retains the detected information for future processing, which can occur on a short-term or long-term basis.

The second type of cognitive process performs in more complex way:

1. **Thinking** convergence of processed information facilitates the formation of judgments, deductions, and ultimately, learning. This intricate cognitive process, termed reasoning, can manifest in various forms, including inductive, deductive, and hypothetical-deductive reasoning.
2. **Executive functions** play a critical role in behaviour management through strategic planning, impulse control, and informed decision-making. This enables individuals to guide their behaviour towards the achievement of medium- or long-term goals, fostering a resistance to impulsive actions.
3. **Learning** success hinges upon our proficiency in three key cognitive domains: attentional control, memory storing, and memory retrieval.

4. **Motivation** is a process of directed engagement, whereby an individual focuses their behavior and energy on a specific topic or interest (Jung, 1969b).

1.3. Basic Cognitive processes of the person: perception, attention, information processing and memory, their main characteristics

Perception occupies a significant place in language learning by influencing how we take in, process, and ultimately understand new language information. Perception helps us filter out irrelevant sensory details and focus on the sounds, words, and sentence structures that are important for language learning. For example, in a noisy classroom, a learner might focus on the teacher's voice and ignore background sounds. Our perception of sounds influences how we hear and distinguish the sounds of a second language (L2).

As researchers conclude, learners with good auditory perception (audial students) may find it easier to differentiate between similar-sounding words in the target language. Perception helps us identify patterns in the language, such as grammatical structures and word order. By noticing these patterns, learners can start to build their understanding of how the language works. Our perception of sounds also affects our pronunciation. Learners may struggle to produce sounds that are not present in their native language. However, good auditory perception can help them discriminate between sounds and improve their pronunciation accuracy.

Perception plays a role in vocabulary learning. Learners are more likely to remember words that are associated with clear and vivid mental images.

Perception can be influenced by cultural background. Learners may have pre-existing notions about how language sounds or functions, which can affect their perception of the new language. For instance, Ukrainians have an ability to understand Polish because of a similar language family group (Guevara Erra, Mateos, Wennberg, Perez & Velazquez, 2016).

Attention acts as a spotlight in language learning, directing our mental resources towards the most valuable information for successful acquisition.

Attention allows us to focus on specific aspects of the language input, such as sounds, vocabulary, or grammar, while filtering out distractions. In a conversation, for instance, we might focus on the speaker's pronunciation while ignoring background noise. By focusing on specific language elements, attention fuels deeper processing of that information. This allows the brain to encode the information more effectively for memory storage and retrieval later.

Attention is a tool for us to distinguish important information from less relevant details. This allows learners to prioritize what needs to be learned first, focusing on key vocabulary or grammatical structures in a particular context. Focused attention strengthens memory consolidation. When a learner pays close attention to new language information, it is more likely to be stored in long-term memory and readily accessible for recall when needed. Sustained attention during language practice allows learners to automate previously learned elements, leading to smoother and more fluent communication. As attention becomes less demanding for basic tasks, learners can focus on more complex aspects of the language. Attention spans can vary, and learners can increase their ability to focus through practice and targeted exercises. Attention is often driven by motivation and interest. Engaging learning materials and activities can help capture a learner's attention and improve language acquisition.

Information processing plays a central role in language learning, acting as the engine that drives students' ability to take in new language information meaningfully and ultimately use it effectively. Learners need to be able to process the language they are exposed to, which involves understanding sounds, words, grammar, and sentence structures. This processing allows learners to extract meaning from the language input. Once processed, the information needs to be encoded into memory for storage and later retrieval. Effective information processing facilitates the creation of strong memory representations of new vocabulary, grammar rules, and pronunciation patterns. Information processing helps learners identify patterns in the language. These patterns can include grammatical structures, word order, and collocations (words that frequently appear together). By recognizing these patterns,

learners can begin to build their understanding of how the language works. Information processing also enables learners to monitor their own language production and identify errors. This allows them to self-correct and refine their use of the language over time. Efficient information processing is crucial for developing fluency. As learners become more adept at processing language input, they can start to automate basic language functions, allowing them to communicate more smoothly and spontaneously (El-Zawawy, 2021).

Memory serves as the cornerstone of successful language acquisition, functioning as the repository for all information assimilated during the learning process. Memory underpins the storage and retrieval of newly acquired vocabulary. Effective encoding practices, such as repetition, spaced practice, and contextual association, enhance memory consolidation, solidifying the learned vocabulary in long-term memory. The successful mastery of grammatical structures necessitates the memorization of rules and their application across diverse contexts. Durable memory allows learners to retain these rules and deploy them accurately in both spoken and written communication. This cognitive process plays a significant role in pronunciation. Learners must encode and maintain accurate representations of the target language's sounds and sound combinations. Auditory memory and practice imitating native speakers facilitate the development of accurate pronunciation.

Strong memory fosters the automation of fundamental language skills. Learners can access previously learned vocabulary and grammatical structures with greater ease, leading to smoother and more spontaneous communication. Memory is critical for comprehending both spoken and written language. Learners must retrieve stored vocabulary and grammatical knowledge to decipher the meaning of encountered language (Dale & Duran, 2011).

Let us show short-term and long-term memory. Language learning benefits from the interplay of various memory systems. Short-term memory facilitates immediate processing of information, while long-term memory is essential for the sustained storage and retrieval of language knowledge over extended periods. Process sentence meaning holds onto a string of words long enough to grasp the

overall meaning of a sentence. For example, remembering the subject of a sentence while processing the verb phrase, bridges the gap between what is being heard or read and the formulation of a response. This allows for a smoother flow of conversation without losing track of the preceding information. Short-term memory holds onto unfamiliar vocabulary encountered in a sentence while searching for meaning through context or prior knowledge, temporarily store a grammatical rule being learned (e.g., past tense conjugation) and apply it to the current situation (e.g., conjugating a verb in a sentence).

Long-term memory serves as the crucial repository for the knowledge and skills accumulated during the language acquisition process. Its durable storage capacity and retrieval mechanisms underpin various aspects of successful language learning. Long-term memory allows learners to retain newly acquired vocabulary beyond immediate use. Effective encoding practices, such as spaced repetition, contextual association, and meaningful use, facilitate the consolidation of vocabulary into long-term memory stores. This ensures learners can readily access and retrieve words for both comprehension and production. Mastery of grammatical structures hinges upon the ability to store and retrieve them from long-term memory. Learners must encode grammatical rules, their exceptions, and various usage contexts. Long-term memory allows for the retention of these complexities, enabling learners to apply them accurately in diverse communication scenarios. Long-term memory as a cognitive process takes a significant place in the automation of fundamental language skills. As learners repeatedly practice vocabulary and grammar in context, these elements become consolidated in long-term memory. This allows for automatic retrieval and use, leading to smoother and more spontaneous communication. It facilitates the storage of sound patterns and pronunciation rules specific to the target language. Learners rely on this memory to accurately reproduce sounds, maintain correct intonation, and develop a natural-sounding accent. Long-term memory stores a vast amount of information, including knowledge from a learner’s native language. This existing knowledge base serves as a foundation for acquiring a new language. Learners can draw parallels between their native language

and the target language, facilitating the transfer of previously learned concepts and accelerating the learning process.

1.4. Higher Cognitive processes: thinking, executive functions, learning and motivation, their role in studying a foreign language

Thinking and language learning are not distinct processes; rather, they are intricately interwoven. Thinking acts as both a driver and a consequence of effective language acquisition, influencing and being influenced by it in several key ways.

Language serves as a tool for thought. According to scientists (Cui, Wang & Zhong, 2021), learners engage in cognitive processing to analyze and understand the language they encounter. This involves breaking down sentences, identifying grammatical structures, and inferring meaning from context. This cognitive processing strengthens neural pathways, enhancing the learner's ability to think critically and creatively within the target language. Language learning often involves problem-solving tasks, such as untangling complex grammar rules or deciphering ambiguous vocabulary usage. These challenges stimulate cognitive development, equipping learners with improved problem-solving and reasoning skills that can be applied beyond language learning.

Thinking critically about the learning process itself is crucial for effective language acquisition. Learners develop metacognitive skills, allowing them to monitor their progress, identify areas of weakness, and adapt their learning strategies. This self-awareness fosters a more reflective and efficient approach to language learning. Students can leverage their existing knowledge and thinking patterns to facilitate language acquisition. By drawing parallels between their native language and the target language, they can transfer existing cognitive frameworks, accelerating the learning process. Language serves as a springboard for creative thinking. As learners become more proficient in the target language, they gain the ability to express themselves creatively, explore new ideas, and participate in more nuanced forms of communication.

In summary, the relationship between thinking and language learning is symbiotic. Thinking empowers learners to analyse, understand, and ultimately master the complexities of a new language. Conversely, language acquisition enriches cognitive processes, enhancing critical thinking, problem-solving, and creative expression (Bucci, Maskit & Murphy, 2016).

Executive functions (EFs) constitute a collection of cognitive processes that govern our ability to plan, organize, regulate, and monitor our actions. These functions play an important role in successful language acquisition, influencing various aspects of the learning process. Working memory acts as a temporary workspace, holding recently encountered language information for immediate processing and manipulation. This allows learners to retain essential elements of a sentence, grammatical structures, or unfamiliar vocabulary while simultaneously processing new information. Strong working memory facilitates the planning and execution of spoken or written language. Learners can hold onto the overall message they intend to convey while retrieving the necessary vocabulary and grammatical structures.

Effective language learning often requires selective focus on relevant information while filtering out distractions. Inhibitory control allows learners to suppress irrelevant thoughts and environmental stimuli, maintaining focus on the language input. Inhibitory control plays a role in self-monitoring and error correction. Learners can identify their own mistakes, suppress the incorrect response, and select the appropriate alternative.

Language use varies across contexts. Learners need to adapt their communication style depending on the situation (formal vs. informal), audience, and purpose. Cognitive flexibility allows them to switch between different grammatical structures, vocabulary levels, and registers effectively. Language learning involves encountering challenges, such as complex grammar rules or unfamiliar vocabulary. Cognitive flexibility empowers learners to explore diverse strategies, adjust their learning approach, and persevere through difficulties. Effective language acquisition necessitates setting realistic goals and planning a structured learning approach.

Planning skills allow learners to identify their learning objectives, choose appropriate learning materials, and develop a study schedule. Planning and self-monitoring go hand-in-hand. Learners with strong executive functions can track their progress, identify areas needing improvement, and adjust their learning strategies accordingly.

Therefore, executive functions serve as the orchestra conductors of language learning, guiding and regulating the various cognitive processes involved. By strengthening these functions, learners can enhance their ability to process information, manage distractions, adapt to different contexts, and strategically approach language learning, ultimately leading to more efficient and successful acquisition of a new language. Successful language learning hinges upon a complex interplay of cognitive processes. Three key domains there are: attentional control, memory storage, and memory retrieval. They are along with executive functions, act as the cornerstones of effective acquisition (Falé, Costa & Luegi, 2016).

Attention serves as a spotlight, filtering out irrelevant information and directing cognitive resources towards crucial elements like sounds, words, and grammatical structures. This allows learners to focus on the language input despite potential distractions in the environment. By prioritizing relevant information, attention fuels deeper processing of language elements. This facilitates the encoding of information into memory for later retrieval and fosters a richer understanding of the target language, attention helps learners distinguish important information from less relevant details. With focused attention, learners can prioritize what needs to be learned first, such as key vocabulary or grammatical structures in a particular context.

As already mentioned above, memory is essential for storing and retrieving newly acquired vocabulary words. Effective encoding practices, such as repetition with spaced intervals and association with context, strengthen memory consolidation, solidifying vocabulary in long-term memory. Mastery of grammatical structures necessitates memorizing rules and how they apply across diverse contexts. Good memory allows learners to retain these rules and apply them accurately when

speaking or writing. Memory plays a crucial role in pronunciation and learners need to encode and maintain accurate representations of the target language's sounds and sound combinations. This includes both auditory memory and practice mimicking native speakers. Memory retrieval underpins comprehension of spoken and written language. Learners must retrieve stored vocabulary and grammatical knowledge to decipher the meaning of encountered language.

Efficient memory retrieval facilitates fluency. As learners become adept at retrieving previously learned vocabulary and grammar structures, communication becomes smoother and more spontaneous. Memory retrieval plays a role in self-monitoring and error correction. Learners can identify errors in their own production by retrieving the correct grammatical rule or vocabulary word. Executive functions are a collection of cognitive processes governing planning, organization, regulation, and monitoring. These functions orchestrate and optimize the use of attention, memory, and other cognitive processes in language acquisition such as working memory; a temporary workspace holds recently encountered language information. It allows learners to process complex sentences, grammatical structures, and unfamiliar vocabulary simultaneously. Inhibitory controlled function helps learners suppress irrelevant thoughts and distractions, allowing them to focus on the target language. It also enables self-monitoring and error correction. Cognitive flexibility allows learners to adapt to different learning contexts and communication styles. They can switch between grammatical structures, vocabulary levels, and registers depending on the situation (McCarthy & O'Dell, 2017).

Executive functions facilitate setting realistic goals for language learning and planning a structured approach. Monitoring progress allows learners to identify areas needing improvement and adjust their learning strategies accordingly. In summary, successful language acquisition requires a symphony of cognitive processes. Attention, memory, and executive functions work together to capture, encode, store, retrieve, and utilize language information effectively. By strengthening these cognitive skills, learners can optimize their language learning process and achieve their desired level of proficiency.

Motivation serves as a potent catalyst in language learning, acting as the engine that propels learners towards sustained engagement and successful acquisition. Motivation fosters the setting of specific and achievable language learning goals. Learners with strong intrinsic motivation are driven by a genuine desire to learn the language, leading them to invest significant time and effort in achieving their goals. The language learning process does not exist without its hurdles. Inevitable setbacks and frustrations can arise. Motivation acts as a fuel source, enabling learners to persevere through challenges and remain committed to their learning objectives.

Motivation enhances the learner's ability to focus on relevant language input. They are more likely to actively listen, pay close attention to details, and prioritize important information like vocabulary and grammar structures. Motivated learners are better equipped to filter out distractions and maintain their focus on language learning activities. This sustained attention facilitates deeper processing and encoding of language information.

A strong intrinsic desire to learn fuels active engagement with the target language. Learners are more likely to seek out opportunities to practice using the language, participate actively in conversation classes, and engage in self-directed learning activities. Active learning strategies spurred by motivation lead to deeper processing of language information and enhance memory consolidation. This reinforces learning and promotes long-term retention (Mykhalchuk & Khupavsheva, 2020).

Motivation fosters a positive learning environment where learners feel comfortable taking risks, making mistakes, and experimenting with the language. This sense of safety promotes enjoyment and reduces anxiety associated with learning a new language, the internal desire to learn cultivates a sense of self-efficacy. Learners believe in their ability to achieve their language learning goals, fostering a positive outlook and encouraging them to keep striving for improvement.

Motivation is not merely a feeling; it is a driving force that orchestrates various cognitive processes involved in language learning. By harnessing the power

of intrinsic motivation, learners can enhance their focus, engagement, and ultimately, achieve their language learning aspirations.

Cognitive processes, encompassing a spectrum of mental operations, serve as the foundation upon which cognitive skills are built. These trainable abilities can be continuously refined throughout life. Memory, concentration, and associative thinking are just a few examples of the cognitive skills that benefit from ongoing development. To construct a rationale, the brain must strategically leverage these very skills. This intricate interplay underscores the dynamic nature of cognitive development, where skills empower the very processes that refine them further.

The successful interpretation of language depends upon the coordinated interaction of various complex cognitive processes, including acquired knowledge, memory, and higher-order thinking. For instance, engaging in deliberate mnemonic strategies, such as actively recalling information and forming mental imagery, can enhance memory function. This strengthened memory, in turn, contributes to improved language acquisition and development. The analogy of the brain to a muscle accurately underscores the trainability of cognitive skills. Through targeted interventions, these skills can be improved, leading to enhanced performance in various activities. Such improvements can manifest as an extended attention span or heightened fluid intelligence. The key to achieving this lies in strategically exercising specific facets of these cognitive processes to strengthen the underlying neural networks.

Conclusions to the first Chapter

Cognitive factors and individual differences in language processing are important aspects of research in Linguistics, Psychology, and Cognitive science. They are significant for understanding the differences and performances of diverse individuals in the language processing process. Firstly, cognitive factors play a key role in language processing. Cognitive factors include individuals' psychological processes such as attention, memory, and thinking, which play a crucial role in

language understanding, production, and use. For example, attention helps individuals filter out important language information, memory enables individuals to store and recall past language experiences, and thinking allows individuals to understand and analyze complex language structures and meanings. In conclusion, the intricate interplay between cognitive factors and individual learner variability underscores the multifaceted nature of language processing. By delving deeper into these factors and their diverse manifestations across individuals, we gain a more nuanced understanding of the characteristics and performance profiles exhibited during language acquisition, highlighting the transformative impact that quality language education and language methodology can have on educational outcomes and global communication.

Cognitive processes are derived into two types named basic and higher. Basic cognitive processes constitute the system with information processed and integrated:

- **Perception** consists of the initial stage of information processing, encompassing the active capture, interpretation, and construction of meaning from sensory stimuli. This fundamental cognitive function enables us to transform raw sensory data received through our various organs (eyes, ears, nose, tongue, and skin) into a coherent understanding of the world around us.

- **Attention.** During information processing, humans actively direct their attention and cognitive resources to specific stimuli.

- **Information processing** facilitates the transformation of captured information into a compiled format.

- **Memory.** The system retains the detected information for future processing, which can occur on a short-term or long-term basis.

The second type of cognitive process performs in more complex way:

- **Thinking** convergence of processed information facilitates the formation of judgments, deductions, and ultimately, learning. This intricate cognitive process, termed reasoning, can manifest in various forms, including inductive, deductive, and hypothetical-deductive reasoning.

- **Executive functions** play a critical role in behaviour management through strategic planning, impulse control, and informed decision-making. This enables individuals to guide their behaviour towards the achievement of medium- or long-term goals, fostering a resistance to impulsive actions.

- **Learning** success hinges upon our proficiency in three key cognitive domains: attentional control, memory storing, and memory retrieval.

- **Motivation** is a process of directed engagement, whereby an individual focuses their behavior and energy on a specific topic or interest.

Chapter 2.
Cognitive means of teaching English at school

2.1. Reading with supports as a mechanism of Cognitive Psychology

During the academic 2024-2025 year we conducted the educational process in Rivne Lyceum “Harmony” taking into account linguistic means of providing the principles of Cognitive Psychology in experimental groups. The process of formation of skills in general and reading skills in each cycle of classes was carried out in two directions. **The First Principle of Cognitive Psychology** involves the process of training and development of individual skills, speech operations and actions necessary to understand the reading, on the material of selected texts. Then on this basis we turn to the practice of reading texts of the same subject and on the basis of the same lexical and grammatical material. The First Principle of Cognitive Psychology is traditional and we will not stop there in details. The second direction is an additional linguistic practice in reading texts, the linguistic material of which has not previously been studied. These texts are available to pupils through the help of the hint at reading.

The First Principle of Cognitive Psychology is introducing new grammatical and lexical materials and performing any exercises aimed at developing the skills of manipulating with this material. If exercises are grammatically oriented, then grammatical forms that are foreseen to be entered in this cycle of classes are worked out in them. The possession of these grammatical forms in terms of reading is necessary to understand the read at the level of sentences, and not the text as a whole. In grammatically directed exercises, a certain number of new vocabularies is also assimilated in passing. It is introduced in familiarity with the new grammar and is memorized by the numerous visual perceptions of words. If the cycle does not foresee the introduction of a new grammar, and the texts for reading are based

mainly on the known grammar, then exercises aimed at assimilating the lexical units of the receptive minimum are used.

The Second Principle of Cognitive Psychology is based on reading using the previously mentioned reading with the supports. The reading with the supports at first was proposed and applied by scientists (Pimperton & Nation, 2010). But these scientists considered this kind of reading as an auxiliary linguistic practice for pupils with a mathematical direction, that is the texts with which he conducted the research contained as supports and suggestions with various mathematical formulas, diagrams, graphs, etc. However, we will try to arrange our experiment with artistic texts, where such tips cannot be.

So, let's take two of our experimental groups E1 (9-A) and E2 (9-B), and during the several classes we will offer pupils unfamiliar texts to do a brief translation. The proposed texts constitute one story, and can contain unfamiliar vocabulary and grammar. The volume of each text contains up to 1500 printed points. Because the texts are unfamiliar to pupils and they can be based on unproductive material, lexical and language difficulties for pupils are not removed. In the proposed texts, new and key words and phrases for understanding the language have not been worked out before. Therefore, in order to ensure that these elements do not interfere with the comprehension of the perceived information, we at the initial stage use the interlaced translation of difficult to understand, or unfamiliar words and phrases, as well as individual grammatical phenomena. Consequently, having some linguistic knowledge and knowing a certain order in constructing sentences in English, the pupil draws attention to the obscure word or design. Immediately determining, according to the laws of the structure of the sentence, which part of the language is the given word, and in what relation it is to other parts of the language in the sentence, or in what relation is the given grammatical phenomenon in relation to the content of the text and to the rest of the sentence, the pupil builds logical content the model of the text. If an obscure word contains interlaced translation, the pupil at a subconscious level logically links the translated word, phrase or construct with the content model that it builds in the process of reading and understanding the text.

Each subsequent text contains the maximum of possible repeatability of the keywords entered in the previous texts. However, in the future such words are included into the text without line translation. The repetition of the linguistic material provides an opportunity for its easy memorization, which also contributes to the importance of these words for a successful reading comprehension. As you move from text to text, the number of verbal tips (line-through translation) is gradually decreasing. This is possible due to the accumulation of receptive vocabulary by students. As it was noted, a cognitive model of teaching English at school is capable of reproducing perceived information and operating it only as a result of repeated repetition. However, it is known that the most effective repetition, this recurrence is relaxed, that is one that does not require excessive concentration. Therefore, such a mechanism of perception and comprehension of sentences is psychologically readily mastered by students, without excessive concentration of attention and concentration.

To work with each text, we spend as much time as necessary for the learner reading (for the text in 1,5 thousand printed points – no more than 5 minutes). After the time has gone out, we take the text from the students, and instead offer them, write in the native language a short generalization of the text in the amount of 5-6 sentences, preferably using the words that were entered in the text with interlaced translation. This, on the one hand, establishes a new vocabulary, and when repeated in the following texts, there is no longer a need for interlaced translation, on the other hand it teaches students to shorten the text by extracting from the text of sentences containing the main content information, rebuilding them and rephrasing them.

Last two texts should be generalized. They summarize the contents of the previous texts and must include reciprocally assimilated material. In the generalized texts built on this material there are no verbal indications, they fix the words entered and their combination, however, they are a form of control over understanding.

So, we will try to check the effectiveness of this method. Let’s take two texts that were not studied by pupils of experimental groups. One text was based on the material previously studied by pupils in E2 group, that is, the vocabulary and

grammar of this text are already known to them. The second text was the last, fixing from a number of texts, which were based on reading with supports (since the text is the last, generalizing there is no line translation there). The control task was to translate the read text. Although translation is far from the best means of reading, however, to test the pupil's translation allows us to determine how accurately students understood the perceived information of the text, all the details of the content. Writing in the native language the content of the text read, comparing and analyzing the level of understanding does not complicate. As a result, this form of verification was selected as the most convenient for experimental purposes, an understanding control tool.

When working with texts pupils did not use dictionaries. Understanding the text of each pupil of the E2 group was estimated by the number of facts correctly understood when describing the content of the text in their native language. The control texts contain 20 such facts. Results of the task are presented in Table. 2.1. In the table, we give the average data for each text, calculated on the coefficient of understanding.

Table. 2.1

The number of facts correctly understood by the pupils of the E 2 group when reading the control texts

The number of correctly understood facts when reading the text with the preliminary study of the linguistic material	%	The number of correctly understood facts when reading the text using the "reading mechanism with supports"	%
14,4	67,5	19,1	92,0

Listed in tab. 2.1 indicators testify to the advantages of this mechanism over ordinary reading with the previous study of linguistic material. This is due to the peculiarities of human memory. As it was noted earlier, a cognitive model is not able to perceive the entire amount of information provided in the previous study of linguistic material. Of all the material traversed in memory is only a part of it. Memory must be specially trained and developed, expanding it gradually, without

excessive load. Therefore, the proposed mechanism should be given more attention as an additional developing mechanism for expanding memory and improving the level of reading comprehension.

2.2. Linguistic means of providing a language guess in the process of reading

Under the linguistic means of providing a verbal guess we understand, on the one hand, word-forming models that make it possible to guess about the meaning of unexplained words; on the other hand, we understand that what is known in the literature is “typical correspondences of single-root words”, or “regular interlingua correspondences in words common root”. The selection of the minimum necessary means of verbal guessing for each of these discharges has its own specifics and therefore they should be considered separately. Let’s start with the problem of selecting the word-forming minimum. To do this, first, solve the problem of the educational word-forming unit.

Among the models selected within the framework of corresponding nouns and transitive verbs in English, it is possible to combine the “use N” model for learning purposes (N – water - вода, V – to water - поливати водою) and model “use N as a tool” (N – razor - бритва, V – to razor - брити). Of course, the delimitation of the semantic variants of one or another material complex, including the word-forming structure, is quite complicated, therefore the proposed approaches depend on the degree of objectivity. And this means that in some cases, the educational word-forming unit will not be semantically coinciding with the model-types represented in the theoretical and descriptive works on word-formation in the language being studied.

In some cases, it is possible and even necessary to combine two models with the same formant in its given word-forming meaning, but differentiated by the categorical affiliation of the original word, into one learning form-forming unit. On the basis of the similarity or almost complete coincidence of the word-forming value

of a formant, one unitary vocabulary from the English language models can be created “adj + -ize = v” (popularize, etc.) and “n + -ize = v” (carbonize). Accordingly, when introducing, for example, units with the suffix -ize, which forms the verb of the above value, to the attention of students is the fact that this suffix joins the noun or adjective.

Therefore, logically we can assume that for selecting a material for a reception, in the word-forming minimum for a guess, it is more expedient to include only such units, the probability of meeting with which is quite large.

It is known that while words, phrases, phraseologisms and grammatical phenomena are studied as means of transmission and perception of meaning, word-forming material is only an indirect means of perception of thought. It is a tool for understanding words that were not directly the subject of educational activity. Instead of assuring the assimilation of a certain number of words as units of the lexical minimum, the instructor requires that students master the skill or the ability to operate the word-forming model underlying these words when perceiving its derivatives. It is clear that such an indirect way of working on vocabulary, whose understanding is one of the conditions for a fairly loose reading, is only feasible in those cases when efforts are necessary for the assimilation of this word-forming unit, less than the efforts aimed at mastering this number of words (that is, the study subject to the model, covering large lexical groups). The proposed linguistic mechanism also frees pupils from the need to set the value of a certain part of the words in the dictionary and save time.

Thus, the selection of such word-forming units, which on one side are often found in the texts, on the other hand form many derivatives. When determining the volume of the word-forming series of each of the word-forming units, not all derivatives should be taken into account, but only those which, in the interests of lexical guesses, can be understood by this group of students without a semantic context clue at the first meeting. The availability of derivatives for self-understanding depends on two factors that act in the complex.

First, accessibility is due to the peculiarities of the given word. On the one hand, here we mean the ability to recognize in this word its word-forming parts. On the other hand, the peculiarities of the word include the measure of its semantic identity, which is proportional to the degree of idiomatic value of the derivative and is also determined by the nature of the relation of this derivative with its correlation in the native language. Secondly, the availability of specific derivatives for understanding depends on the specifics of this contingent of schoolchildren, since under unequal conditions the uneducated word can be understood by one contingent of pupils and incomprehensible to another one, besides, accessibility depends on the knowledge of the semantics of the word that acts as an initial basis.

This means that, based on the analysis of each word-forming unit, derivatives that are formed from words not included in the lexical minimum of a foreign language for which the word-forming material is selected should be excluded immediately. And from among the derivatives, all components of which are known or will be known to students in determining the volume of the word-forming series and its total frequency, only derivatives that are accessible for understanding in the light of the above-mentioned factors should be taken into account.

The problem of a potential word-forming series, to date, has not been studied enough. We distinguish the main sources of potential word-forming material.

1. Models that do not contain word-forming affixes. Substantiation of adjectives, verbally-nominal conversion with coincident semantic relationships (for example, an object is an action made with the help of this subject: a screw – to screw, a phone – to phone) are similar to the word-formation models (like “N + Participle 1 = Adj”, for example: time-saving,).

2. Models of complex words (for example, the model “N + N”, in which the basis of the first noun acts as a term for the second: schoolhouse, timetable).

3. Models that combine explored or accessible self-understanding of the word-forming model and another studied model that reflects any other form of word-formation (such as “(V + Adv) + conversion”, for example: to break down – a breakdown).

4. Models that structurally coincide with the studied and semantically almost do not differ from them.

As it was noted by scientists (Shymko, 2018b), the development of automatism is a prerequisite for word-forming guesswork in the process of rapid reading. At the first meeting with the derivative after the work of this word-forming unit, the pupil correlates the form of the word with its semantics only through the process of guessing. Consequently, the efforts spent on working out the word-forming unit, justify themselves only when all its derivatives are used to work out this unit. However, work on some model is not appropriate, when the volume of its word-forming series does not exceed 6-7 derivatives, since it is much easier to achieve the assimilation of these words as units of the vocabulary minimum. Therefore, the problem of including this word-forming unit in a minimum is relevant in the case where the minimum number of unexplored, but accessible for an independent understanding of derivatives, is about 15-20.

Knowledge of word-forming models greatly reduces the number of vocabulary units that are to be remembered, for example: on the basis of the well-known useless, formless, and similar, it is not difficult to understand the first seen speechless or groundless (dumb, idle speaking, silent, etc., or groundless, unreasonable, and etc.). Understanding the parts, knowledge of the models, in the context gives the opportunity to perceive and understand the given word and to generate a more or less successful equivalent of the native language, even before the reference to the dictionary.

In virtually any word-forming series there are derivatives that can be understood at the first meeting with them on the basis of automated speech guesswork operations, and derivatives for deriving semantics which require a more profound thinking. Therefore, the skills of the difficult word-forming guess specially taught. This problem can be solved mainly on word-forming units, whose series of derivatives is composed entirely or almost entirely from the complex initial words.

Consequently, pupils of experimental groups from time to time were given exercises with the task of understanding or guessing the meaning of a new word based on the known suffixes, prefixes and roots.

For example: give the translation of the words:

maning – the root of man shows a certain process of working with people, ending-ing on the length of the process of working with people, that is, the language may refer to the provision of human resources;

armament (arming) – having encountered the root of the arm in the brain immediately comes the impulsive signal – the “weapon” characteristic of nouns ending -ment suggests that this long process is associated with the weapon, so having met this word in the context of the student having skills word-forming minimum can understand that it is a weapon (armed).

In order to further improve our skills, we gradually began to offer students the task of understanding new words from the context based on known suffixes, prefixes and endings, and unknown roots. For example:

The senior priest of the local orthodox church blesses Ukrainian peacemakers before they depart for Liberia [Kyiv Post].

If, in this sentence, assume that the words *blesses* and *depart* pupils are not aware that, after working out a number of word-forming models, the schoolchild is no longer difficult to guess about their meaning, even without context. About the meaning of the word *depart,* can be guessed on the basis of word-forming models. Prefix *de-* means the process of separation from something, the stem *part* means the reverse process – the process of joining something. That is why the word *depart* means separating from something in order to attach to something else. So, if we are talking about peacekeepers, then words that are more likely to be suitable here are *вирушать, прибудуть*. On the basis of the context, the pupil’s sentence is no longer difficult to guess about the meaning of the word *to bless,* since it is known from the experience of life that a priest can do peacekeepers before sending them to a peacekeeping mission.

The group of 114 troops was dispatched from Kyiv straight to the African country.

In this sentence, which is next to the previous one, we can assume that words may be unknown *troops, dispatched.* The word *troops,* for a pupil who reads the text thoughtfully, is understandable from the context, since peacekeepers are essentially soldiers, and if in the text, besides peacekeepers, the language is no longer about anyone, therefore, it is clear from the context that it is a synonym for the word "peacemaker", that is about 114 soldiers. The word *dispatched,* also on the basis of understanding the surrounding of his words, may suggest that it is a question of sending peacekeepers, as the passive state and words say this *was … from … straight to… .*

The following key provisions should apply to the selection of regular interlanguage correspondences in the common root words:

- The following regular correspondences are taken into account, which, on the one hand, are quite often encountered in writing, on the other hand, appear in a sufficiently large number of words.

- In implementing this provision, only words of a foreign language that have a common root in their native language should also be taken into account, and they are not part of the lexical minimum for communication and reading (that is, words which assimilation is not provided) and which can be independently understandable for this contingent of students (after assimilation of the studied regular compliance) at least in one sense.

It should be borne in mind that the availability of specific words of the common root for independent understanding depends on whether the pupil is familiar with the corresponding word in his native language. For example, if it is a special term like the Ukrainian medical term *летальний* and this word is unknown to the pupil, then he hardly understands the English word *lethal,* or *total – тотальний, integral – інтегральний*. To understand the general words of the international root it is necessary with the help of special exercises, first learn to "see" the graphic similarity, which to some extent is hidden by the presence of different alphabets, that

is, to learn to see the English Nature of Ukrainian nature. Also important is the ability to see the Ukrainian Synonym in the Ukrainian language, along with the international root: nature – nature, natural; industry – industry, industrial; experiment - experiment, experience; intervention – intervention, interventional, etc.

Therefore, in order to consolidate the skills of the vision of graphic similarity of international words, students can be offered exercises that require both the definition of a common root and the selection of an equivalent in their native language, with the subsequent transfer of this task to the level of work with the text, when, in the presence of the context, the selection of the correspondence of the native language will be more specific and obvious.

However, in any case, this mechanism was not more effective for the study of a foreign language (in this case, English) in the countries of the Romano-Germanic language group, since in these languages words with a common root are much more than in the countries of the Slavic language group. However, it can also be effectively applied to us if a group of students already owns a European language of the above group. Then, on the basis of comparison of the degree of coincidence of the form of the word perceived with the form of its correlate in the previously learned language, as well as the degree of coincidence of the semantics of the given pair of words of the common root, it is better to perceive and understand foreign-language artistic (and not only) text.

2.3. The problem of learning the meaning of words in the process of reading

Any course of teaching a foreign language involves the assimilation of only a small part of the entire vocabulary. The dictionary is boundless, so it’s natural that when reading a text, there is always a wealth of information not available to understand a group of students.

It is common knowledge that for reading the English text with a relative completeness of understanding enough possession (perception and understanding) is rather limited (in comparison with the total volume of the dictionary) by the number of words. According to various calculations, this figure ranges from 2,500-3,000 to 6,000 vocabulary units.

However, when assessing the required vocabulary, it is necessary to determine not only how many words and which ones are needed for reading with a complete understanding, but also the degree of possession of these words: the dictionary is boundless not only in terms of the number of units that make up it, but also in terms of the number of possible combinations of these units. It is hardly possible to assume a learned word, which the reader understands only in one particular environment and before which he comes to a standstill, if it occurs in a new, unusual context. Only the word that can be understood in practically any context should be taken into consideration.

However, the assimilation of the vocabulary needed for reading is accompanied by a fairly significant load on memory, which significantly exceeds the load on memory when learning grammar.

It is quite natural that the complications that arise when remembering individual words depend not only on age, but also on intelligence. Students of different specialties think differently. For example, in psychology it is noted that people of intellectual work with developed analytical thinking feel helpless when their task is to memorize (remember) a certain number of words that are not bound together. Their untrained mechanical memory refuses to accept the words written in the column. This is another difference between grammar and grammar: grammar is a system that is more logical and consistent; dictionary (at first glance) – these are not interconnected individual elements, which have no boundaries and which can be combined to give rise to even more limitless in its variety of judgments. Faced with this infinite and unorganized set of words, the student (especially the category above) is difficult to fulfill the task he faces: he repeatedly writes out of the dictionary the same words that are not memorized, which gives rise to a sense of

hopelessness that is more for all, reduces the efficiency of occupations, since formed a persistent belief in their own inability to speak the language due to “bad” memory.

In addition, existing dictionaries state, partially systematized, but do not explain. As a result, the information contained in the dictionaries in the form in which it is presented is very difficult to remember. Therefore, we need a linguistic approach or mechanism that appeals not to memory, but rather to intelligence and its analytical capabilities.

Assuming that the concept of invariance is really rightly propagated to the semantic level of linguistic analysis and what exists, the so-called “total meaning” of the word. Then we can assume that on the basis of the analysis of words it is possible to develop the ability of the pupils to speech guessing, to develop in them what is often referred to as “intuition” or “sensation of speech”. The main goal of the proposed mechanism can be considered learning not words, but the skills of analytical understanding of words by comparison, association, the establishment of familiar elements, etc.

The analysis of each word, on the one hand, undoubtedly contributes to its memorization more effectively, on the other hand – and this is important, it serves as the basis for the perception of an entire category of similar words. The analytical approach to the word develops a linguistic guess, the ability to predict, without which the process of reading cannot be done in either the native language or the foreign language. He completely eliminates the mechanical appeal to the dictionary at the first meeting with an unfamiliar word, requiring the first analysis of this word, his thinking, the formation of the hypothesis, and only then checking this hypothesis in the dictionary. Despite the fact that such a process may seem longer than its benefits are obvious:

1. The analysis process is to be reproduced, and the word is correctly “guessed” once, may be understandable at subsequent meetings with him.

2. The process of analysis is an active work of thought and, therefore, contributes to memorization better. When a mechanical access to the dictionary does

not take any active mental effort and therefore it is unlikely that it is possible to expect a direct result, that is, memorization.

3. In addition, an appeal to the dictionary after the hypothesis means a conscious search, during which the pupil knows what he is looking for, and therefore has the criterion of the correct choice among many listed in the dictionary of values. When accessing the dictionary to the hypothesis, the search is performed blindly, and the choice of the desired value is considerably complicated, which impedes the correct understanding of the text.

4. Equally important is the fact that by correctly understanding the meaning of any word, the student acquires confidence in his powers, which greatly facilitates further work. Usually, skills develop as they are used, so at a certain stage the student, without waiting for it, suddenly finds out that a large number of "unfamiliar" words in the surface analysis is familiar. Moreover, this occurs without a load on memory, through logical operations that do not represent a complication for a human mental work, and contain an element of search, micro-research, at the end of which it waits for a small discovery. It cannot but bring a sense of pleasure, and with it and increase the efficiency of the material.

However, it should be noted that for various categories of words an element that helps to establish a connection between the known and unknown is different. From this point of view, it is expedient to allocate three categories of words: 1) words whose understanding comes after understanding their graphs; 2) words whose understanding comes after understanding their structure; 3) words whose understanding comes after understanding their context, that is, by understanding the words adjacent to it.

The first category of words includes international words, which in English are quite numerous and play a very important role in understanding the reading. Since the mechanisms of influence of these words on the understanding of the text have already been mentioned earlier, we briefly emphasize that the systematic work with international words exacerbates the ability to "see" the text, develops associative

thinking and makes a significant contribution to increasing the vocabulary of the reader.

The second category is the words whose values are motivated by their form: these are derivative words. As to the need for knowledge of word-forming elements, it seems that there are no objections. However, in teaching practice, work on the semantization of words in parts, by elements, as a rule, or not carried out at all, or carried out sluggishly. However, the firm possession of the system of creating new words (at the level of recognition of familiar elements in unknown words) is the second important factor contributing to the increase of the vocabulary needed for reading.

Training exercises aimed at either identifying and analyzing a model, or recognizing a word-forming element, pursue the goal of developing and consolidating the skill of content analysis of new words based on known components. Types of such exercises are well designed and there is no need to dwell on them.

The greatest difficulty in reading are the words of the third category, that is, words in which neither the graphic nor the structure are directly connected with anything previously known. This is the bulk of the English vocabulary, those words that either lost clear links with related words in English or other languages, or never had them. However, such “isolation” of these words is nevertheless just imaginary. They are closely connected with their neighbors by pronunciation, whose knowledge is the basis upon which the acquaintance of the student with a new word takes place. This is the highest level of analysis that requires special training. Meanwhile, the dictionary in this case should be only the last step on which the hypothesis is checked.

Consider the stages of such an analysis on the example of a rather complex sentence: The timing of the launch means that the sattelite should spend the whole year in space during the peak solar activity and its orbit has been chosen to keep it in the sunlight all the time. In the process of sentence analysis, it is entirely natural that the first stage is a reading of structures, that is, the selection of complete

syntagma of sentence parts. However, we are interested in analysis from the second stage, that is, when moving to the level of words. After familiarizing the students with this sentence, we can assume that the words timing and launch the pupil are unknown, although the first is structurally clear and its root is known, and the second is completely unknown.

At the root of the international roots sattelite, peak, solar activity, orbit, the general theme of the sentence – space (the same words help to understand the word space if it is also unknown) is determined. Understanding the predicate means that all sentences are perceived as a uniform balance of parts, where the left part is unknown (the timing of the launch) and on the right are known (the rest of the sentence). Understanding the right side allows us to form a general hypothesis in relation to the left part of the sentence: somewhat associated with time and with the motion of the satellite. However, such an approximate formulation makes the next degree (an appeal to the dictionary) much more effective.

Although it can generally be assumed that the meaning of the sentence is now relatively clear, however, there is still no certainty about the difference in the meaning of timing, in relation to time, it is quite understandable. Obviously, this action is associated with the launch time. The same edition of the dictionary contains the following information about this noun: timing n tech. concerted action (parts of machines); synchronization; regulation of ignition moment.

If we were trying to memorize or ignore all the values of the given word in the first encounter with it, then this task would have been ineffective, since memory would not survive such a load, and if even we could get all the meanings, then the next meeting with this word the student will get lost in choosing the right value for the correct translation. Selecting to memorize one of the brightest meanings of this word (for example: launching with a catapult) is also ineffective. However, if you think about linking these five values of the word launch, it is not difficult to identify some general component that can be called a “common element of content”, which is characteristic of all of these (and not listed) values and uses of this word: “Suddenly bring the object to the state of action, in accordance with its purpose”.

Despite the awkwardness of this formulation, it not only covers all the values of this verb and explains why this verb was used to express a new action (launching spacecraft), but also prepares the reader for the future use of the word. This "common element of the content" defines the choice of a given word to indicate a new situation, being an element that is recognized first of all at each new meeting with the word. It is he who has to be a factor that reveals an organic rather than selective connection between the English word in its various uses and its possible equivalents of the native language. In the absence of this rod, the connection between the English word and the proposed equivalent of the native language is often unclear and unreasonable. It helps to link all proposed values-translations into a single system, with the root of this system being the English word. It is the "general element of the content", and not the individual equivalents of the native language, which are differently distinguished in different words, are often mechanically listed and not in the least integrated into a single system of one word, and should be the subject of study in the first place.

If we compare the data of dictionaries, one can safely assert that in all the meanings and uses there is a common element of content that can be defined as a "tendency for a certain action". Proceeding from this provision, one can develop a number of exercises aimed at developing a word analysis and a search for a common element of the content.

Here is an example of possible exercises aimed at identifying such common elements of content in different words:

to pass (v) – безперешкодне, вільне просування, проходження через певну точку відліку;

subject (n), subject (adj), to subject (v) – піддавання зовнішньому впливу;

fit (n), fit (adj), to fit (v) – відповідність призначенню;

to avail (v), available (adj), availability (n) – наявність в чийомусь розпорядженні в момент потреби;

present (n), present (adj), to present (v) – наявність в даний момент в даному місці;

pattern (n), to pattern (v) – закономірність, що повторюється та включає загальні особливості процесу.

These definitions do not claim absolute justice, some of which may need to be clarified. however, it is not the very wording that matters, but the principle is based on the analytical approach to the study of a foreign language.

2.4. Linguo-methodical mechanism of using syntactic transformations in training reading

Studying reading, the mastery of the structural side of the text is of paramount importance. One of the most effective means of achieving this goal is the wide and systematic use of various syntactic transformational operations in the learning process when learning the syntax of the text. In this case, we are interested in not clearly formalized transformations of the generating type, and various text formations at the syntactical level, for the purpose of explaining and securing structural elements of the text, as well as checking ownership of them.

By extending the English Methodology, or rather, to the linguistic methodology and trying to achieve optimal results in teaching syntax in the learning process of reading, one can broadly interpret the notion of transformation for educational purposes, experimenting in this direction, subject to observance of the general provisions of the methodology and based on syntactic-semantic features of studied structures.

In our opinion, this is not only a legitimate study, but also a very effective and convenient mechanism for learning perception and understanding of the meanings expressed in text syntactic structures. In this regard, I would like to note the following circumstances. Observations show that there is a certain enough complete isomorphism that is systematically traced in the use of certain means of linguistic analysis and its methodological use in the educational process. This applies, first of all, to the methods of structural analysis – such as distributive analysis, transformation analysis and description of language with the help of deep structures.

The use of these examples of structural analysis of the text transforms the learning process into more scientifically sound and more economical, which reduces the use of the native language while learning to read to a minimum. Particularly effective is the transformation method when entering, consolidating and verifying the assimilation of structural elements of the text.

The benefits of the transformational approach to the text text at the syntactic level, according to scientists (Vasilyuk, 1991), are determined by the very nature of the syntactic structures, as opposed to the real sentences of the given language, in which these structures are found. As we know, grammar is more abstract than vocabulary. The degree of generalization in grammar, in syntactic structures and rules, is higher than in sentences containing such structures. Therefore, all possible sentences in this language cannot be covered by any formal description, since, according to the syntactic rules existing in different languages, a large number of specific sentences can be generated.

Historically, the process of understanding and describing the structural features of the text in one language or another was in the opposite direction – from concrete to general, from the description of particular concrete sentences to generalizing rules, structures – as a result of the generalization of some laws in the process of gradual abstraction.

As already noted, the process of reading in a foreign language involves the "extraction" of the content from the text. One of the main points of this process is the content perception of the structure, syntax semantics. It is clear that dealing with a semantic approach to syntax when learning to read foreign-language literature with the direct extraction of information contained in the text is impossible. In modern representations about the syntax, the formal and semantic aspects of the analysis of the text are combined. The notion of grammatical correctness of a sentence is connected with the analysis of grammatical constructions, which determine its structure. The notion of a normal and abnormal sentence occurs when using transformations for diagnostic purposes in the event of a syntactic homonymy.

The use of transformations to distinguish homonymous structures has, as already noted, a diagnostic value and plays a role also in the methodical use of transformations in learning to understand the read. However, the most important are transformations of the opposite type, because even in such a language as English, with the combined morphological elements, the number of homonymous syntactic structures is not that great.

The main method of semantic analysis of syntactical structures is the analysis of synonymous constructs. The main means of describing the meaning is the study of synonymic relations between language expressions. This research is carried out by means of syntactic transformations, which make it possible to transform sentences of a certain type into synonyms and different from the finite ones in the same way.

When comparing synonymous structures, the analysis proceeds from the text (various surface structures) to the meaning (a deep structure that unites all surface variants). The pit structure is a kind of intermediate level between the syntactic and semantic representation of the sentence. A deep structure in any sense helps to establish a correspondence between the forms of sentences and their contents, and this is the main purpose of learning reading, its structural aspect, if the task of reading is the direct extraction of information from the text.

In the development of diagnostic, training and control transformations of the educational type there is the possibility of using transformation operations with different orientations. Learning transformations can be of a facilitating type, that is to say, transformations aimed at replacing one or another structure with a simpler one. However, it should be borne in mind that for carriers of a given language and / or another structure may be easier subjectively, although objectively it is more complex and vice versa. For the carrier of the Ukrainian or German languages, for example, the English compound sentence will be easier, although it is objectively it is more complex in its syntactic structure than the corresponding English structure with non-singular forms of the verb, which is objectively simpler, as it is part of a simple sentence. Simply put, for a person learning a foreign language, the structure

is the more difficult it is, the more it differs from the corresponding structures in its native language.

It is possible to offer for educational purposes and other transformations of the "reverse type" associated with the concept of deep structures. After assimilating the input material, it was fixed and controlled with the help of a special system of transformation exercises, which include duplicate "recognizable" and "transform" and directed from the text to the sense, it is expedient to use the final transformations that require a generalized presentation of the material being traversed. Such transformations can be directed not from the text to the sense, but from the meaning to the text, that is, students will be offered, on the basis of all worked out within the framework of the selected syntactic transformation material, to combine all synonymous structures and transformations, for example, to give all structural and syntactic options for expressing objective, attributive, circumstantial and other types of relationships (see below, task number 3).

To train the "extraction" of meaning from syntactic constructs, students can also be invited to analyze a series of sentences containing structures that have a common semantic pivot: expressing the same syntactic relationship, pointing to the specific modality of the text, conveying basic and additional information, etc. The task of students is reduced to the discovery of the deep meaning of the structures represented by the help of transformation operations.

The double nature of operations in the transformation exercises of the proposed type involves the identification and transformation of specific syntactic complexes according to specific rules with specific purposes. Such recognition by distributive features requires the allocation of a structure from a wider text context. So, for the practical fixing of the proposed approach, we will offer a system of exercises aimed at identifying in the text the structures needed for different formal syntactic and lexical-syntactic features and for the removal of syntactic and semantic information.

For greater efficiency, exercises should be placed in a degree of complexity and should include transformation operations at the level of the phrase, sentence, paragraph and the whole text, and should also be transformational tasks (with keys)

in the text as a whole and in separate parts of the text. We can offer tasks for the transformation of paragraphs and small texts without any change in the syntactic-semantic situation (synonymous transformations), with changes in the situation associated with the division of text and elements of the text with their modality.

Below there are examples of such exercises-tasks that will help to more clearly and specifically present the practical use of these lingual-methodological principles of Cognitive Psychology.

Task № 1. *Replace the distant location of the elements of the selected structures on the contact without changing the meaning of the utterance*.

Transformation theory developed out of, and party in reaction against, the earlier structural linguistics of the phonemic-morphemic type.

A key: Transformation theory developed out of the earlier structural linguistics of the phonemic-morphemic type and party in reaction against.

We cannot talk about language if we continue to treat the internal, formal patterns as subordinate to, and definable by, the external, contextual patterns.

A key: …as subordinate to the external, contextual patterns and definable by them.

Task № 2. *1. Set the syntactic-semantic link between the parts of the name attribute relationship.*

By substituting the perpendicular projection for the Sun-Mars distance Kepler believed he was on the way to the solution of two different problems.

A key: … the distance between Sun and Mars…

The concluding part of the paper was devoted to a magnetic field configuration description.

A key: …to a description of the configuration of the magnetic field.

There are a lot of computers engineers in our laboratory.

A key: … of engineers designing computers …

of engineers operating computers ….

An original plasma confinement experiment was mentioned in the paper.

A key: …an experiment dealing with confinement of plasma.

2. *Replace the underlined parts of the text with equivalent nominal attribute relationships.*

Is the motion of particles really due to the effects of the pressure of radiation?

A key: Is the particles motion really due to the radiation pressure effects?

The paper contained the description of the analysis the curve representing the trend of speed.

A key: The paper contained the speed trend curve analysis description.

Task № 3. *Give all possible structural variants of the selected part of the text without changing the deep meaning*.

Scientific research is sometimes thought of as dull plodding, simply a logical development. In fact, it depends greatly on individual inspiration and originality, in the same way that literature and the arts do.

A key: Scientific research is thought of to be dull…

We think scientific research to be dull …

We think of scientific research as dull ….

We think of scientific research as being dull …

We think of scientific research being dull …

We think of scientific research is dull ….

Task № 4: *a) find in the text elements that point to the author's relation to the statement and determine the nature of this relation; b) modify the modality of the text in the direction of greater confidence of the author in the content of the statement.*

It would therefore be absurd for anyone to pretend to be able to foresee advances that might be made in future even, I would say, in the text ten years. One cannot predict scientific discoveries but one might hope that we may inquire in time the control of thermonuclear reactions as a real understanding of a brain functions.

A key: a) It would be absurd; that might be made; I would say; one cannot predict; we may acquire;

b) It would be absurd (it is absurd); that may be made (will be made); one may hope.

Task № 5. 1. *Find the part of the text that is under the logical emphasis, rebuild the text by removing the emphasis*.

Since science seems to be so dominant it is natural to chose it as a scapegoat. This is more unfortunate, not just because it is not science but what we do with it that matters, but because most of our current problems will only be solved by the proper use of science and technology.

A key: a) …because it is not science but what we do with it that matters …;

b) because not science but what we do with it matters …;

2. Rebuild the next part of the text by changing its actual division, place the name group that is entered in the fraction under the logical accent by to.

The science of society and social behavior is now added to mathematics, physics, chemistry, biology and other physical and natural sciences.

A key: To mathematics, physics, chemistry, biology and other physical and natural sciences is now added the science of society and social behavior.

2.5. The development of linguistic prediction and developing a cognitive ability of the person

Linguistic prediction as a cognitive ability is considered by all psychologists and linguists as one of the main components of mature reading. We believe that having a knowledge of the prediction skills when reading a foreign language testifies to the approach of the level of understanding of the foreign language to the level of a native one. Together with the undeniable understanding linguistic prediction at the cognitive level of the person is one of the main tasks of reading learning. It is the pupil's ability to predict a sign of deep understanding, since such a prediction is based on experience, which provides an opportunity to predict the probability of occurrence of a particular event (if in the past A was often accompanied by the appearance of B, then having met A, the recipient expects B, that is, he predicts the appearance of B). This linguistic prediction manifests itself in the form of

hypotheses about the most probable development of events, from the reader's point of view.

Linguistic prediction applies to the content side of the text – prediction on the content level and its linguistic form – prediction at the verbal / linguistic level. The latter is important in terms of the speed of receiving information, the integrity of units of perception and the efficiency of processing, that is, at the final stage – understanding the text, synthesizing it into a single whole. Forecasting, according to scientists (Mykhalchuk & Kryshevych, 2019), not only accelerates and facilitates perception processes, but also allows the reader to use the strategy of "selective perception", that is, to miss certain linguistic elements that distinguish a mature reader from immature. Its external manifestation is the efficiency and speed of reading.

At the core of prediction at the linguistic / verbal level is the previous linguistic experience, and forecasting at the content level is vital / professional. If, in the presentation of a foreign language, there is no problem of personal experience, since we deal with adults, the acquisition of linguistic experience which is sufficient for the functioning of prediction mechanisms in a foreign language relates to the main tasks of learning. The acquisition of linguistic experience depends on the frequency of repetitions of the units concerned. So, this once again confirms the need for high repetition of linguistic material.

Linguistic prediction is a reproductive component of receptive activity. This necessitates the exercise of reproduction, especially when it comes to syntax, since prediction is always a partial simulation. Based on previous experience, forecasting actually represents a specific form of actualization of knowledge, which already a pupil owns, so all exercises aimed at developing this skill, should be based on only the already known material.[1]

When reading in their native language, pupils are watching forecasting at all levels, but they lose this ability during the period when readings are started in a

[1] It is necessary to distinguish the development of linguistic guesswork on the basis of context and prediction at the linguistic level. The guess is always aimed at revealing the meaning of a new, unknown word and can sometimes be based on prediction. Linguistic prediction, in turn, always represents the actualization of existing knowledge.

foreign language, and why special exercises are required for its activation. In the action of prediction mechanisms at the linguistic level, the reader's presence of phrasal stereotypes and, first of all, syntagms as the minimum integral unit of content is of a great importance.

For the formation of phrasal stereotypes underlying the syntactic bias, the practice of changing / recognizing the function of individual elements of the sentence structure is necessary. Therefore, taking into account the aforementioned provision, we will propose possible exercises aimed at developing the skills of using prediction mechanisms when reading in a foreign language (the proposed exercises are designed for pupils with a lack of knowledge of a foreign language). For example:

Exercise 1. Write possible combinations of such adjectives with nouns.

Adjectives: fast, careful, dangerous, large.

Nouns: car, ship, road, game, skater, …

A key: a fast car, a fast, game, a fast skater, etc.

Exercise 2. Write all possible adjectives that can be used with nouns road, forest, river, etc.

Tasks may contain different combinations: nouns that serve as an appendix to verbs, nouns + postpositive definitions, etc. The main requirement for the exercise is a large number of combinations for each of the suggested words.

Similar to the purpose of the exercise can be executed also as tests. Example:

Exercise 3. Find a noun that is more suitable for combining with the given adjectives.

1. political, progressive, revolutionary	a) sound
2. outstanding, famous, popular, favourite, progressive, well-known, modern	b) movement
3. low, sharp, loud, unpleasant, strange	c) writer

A key: 1b, 2c, 3a.

Exercise 4. Find a noun that can be used after the listed verbs.

1. to read, to write, to open, to send, to receive, to answer	a) a book

2. to read, to write, to publish, to buy, to translate, to enjoy	b) an exercise
3. to read, to write, to translate, to finish, to begin, to repeat	c) a letter

A key: 1c, 2a, 3b.

Predict semantic groups is also facilitated by exercises aimed at combining words with official words.

Exercise 5. Specify the words that may occur after the combination of "preposition + article".

1. in the	a) street, b) home, c) flat, d) evening, e) speak, f) learn, g) center, h) morning, i) sentence;
2. at the	a) theatre, b) hospital, c) evening, d) …

A key: 1a, c, d, g h, i; 2a, b.

Exercise 6. From column B select all possible extensions of the phrase in column A.

A	**B**
At the office we …	a) read books, b) work a lot, c) learn to work quickly, d) write dictations, e) meet engineers from other factories, f) sometimes speak foreign languages, g) do exercise, h) go to the doctor.

Syntactical prediction occurs within the syntagma, so such a great value of the exercises that create in memory different schemes. There are also special exercises that require the reproduction of a similar scheme. For this purpose, exercises designed to form various hypotheses regarding a possible syntactical continuation.

Exercise 7. Give as many endings as it is possible to the proposed beginning of the sentence.

John has …

Expected response: John has a sister; John has to do it at once; John has finished the letter and …

The development of predictive skills is also facilitated by a variety of extensions related to expanding sentences.

Exercise 8. Think up every unfinished sentence as many different endings as possible.

Such a task directly forms the mechanism of forecasting (selection of the required hypotheses), but for this purpose, it is necessary to require from each pupil several variants of the endings. The same task can take the form of a test-exercise designed as a search answer among the proposed:

Exercise 9. Find the ending sentence.

There were no trams or buses	a) so we stayed at home. b) so we had to walk all the way home. c) so she couldn't walk with us.

A key: b.

The development of prediction, at the content level, contribute various tasks that require the establishment of links between sentences.

Exercise 10. Among the proposed sentences of group A find those that could precede the sentences from group B.

A	B
1. We stayed at home last night.	a) The one I had was very old.
2. I bought a new dictionary.	b) We wanted to watch a new TV film.
3. …	c) …

A key: 1b…, 2a.

At the most higher level of content prediction, one can practice predictions based on the already read text of its possible continuation. It was on this principle that we also worked with the pupils of the experimental groups, who had already mastered some of the skills of perception and understanding of the previously unknown.

In the classroom pupils were offered to read the text to a certain place, after verifying the understanding of the read part, the following questions were put to the discussion: what facts will the author continue to operate? What will be discussed next? What conclusion does the author make of these facts?

After an exchange of thoughts, pupils read the corresponding next part of the text (preferably no more than 3-4) and evaluate their forecast. In this case, this is a test of understanding the reading and, at the same time, practical reading experience, which promotes the acquisition of linguistic experience necessary for a thorough understanding.

The indicated tasks contribute not only to the content forecasting, but also to the formation of a review strategy. The perception of the text as a content implies a meaningful prediction of the layout plan, a content plan (facts and so on), the nature of the justification and conclusion / generalization. So, it is expedient to accept these four directions of work of reader's thoughts as object of attention.

2.6. The development of Cognitive abilities of adolescents

In order to study the degree of formation of argumentative discourse of adolescents, we propose to use various methods, traditional for psychological experimental researches (questionnaires, tests, creative activities of pupils, conversations, written interviews, observations). The basis for our research is the method of content-semantic analysis (CSA) of discursive thinking by Mykhalchuk Nataliia, Ivashkevych Ernest, Nohachevska Inna, Nabochuk Alexander & Voitenko Oksana (2021).

The CSA method is used to reconstruct and to analyze thought processes in situations of solving small creative tasks. The last we mean as *psychological factor of effective facilitative interaction*. Within the framework of this tradition, the process of solving a person's creative task is meant as a problem-conflict situation. It is determined by the ambiguity of the conditions of the problem, which provokes the use of stereotyped means of solution that do not lead to the achievement of the result. At the same time, the problem arises in the process of meaningful transformation of the conditions of this problem, when the intellectual means of the individual, which are not enough for its solution, characterize the intellectual sphere of thinking. Cognitive dissonance characterizes the personality aspect of facilitative

interaction and shows itself as a special emotional state of a person, which arises when it is a collision of the latter with a problem, which it cannot be solved with the help of an existing means-stereotype. The person's experience of inadequacy in a problem situation blocks his/her intellectual activity, so the result cannot be achieved. On the other hand, the problem is the condition of active cognitive activity, and the conflict is the presence of contradictions.

In our experimental research 103 pupils of Rivne Lyceum "Harmony" in the town of Rivne were participated. The experiment was organized from September 2024 to March 2025. Its goal was to establish the degree of the development of argumentative discourse of schoolchildren on the basis of patterns of manifestation of the interconnection of perceptual, contextual, integrative images, which were formed at different stages of comprehension of the content of the novel in the situation of internal discursive solving of creative tasks in conditions of a diverse English-speaking environment.

Experimental and control groups were formed by the method of randomization (103 pupils):

- experimental groups:

E1 (37 pupils) – 9-A form, school № 15.

E2 (27 pupils) – 9-B form, school № 15;

- control groups:

C1 (33 pupils) – 9-C form, school № 15.

C2 (36 pupils) – 9-D form, school № 15.

The statement of the relationship of argumentative discourse and the English-speaking environment, as well as the specifics of the latter, was established by us by comparing the data of two groups of pupils. One of them (experimental class E1 and control class C1) consisted of pupils studying English 7 times a week, another (experimental class E2 and control class C2) – teenagers who had English lessons 3 times a week. So, the difference between programs acts as a variable value of the English-speaking environment.

The degree of formation of the argumentative discourse of schoolchildren at the first stage of experiment was determined by the following criteria: the reflection by adolescents of the situation of perception of the problem as a communicative situation; stability in the implementation of a communicative position; reflection of the specificity of literary imagery and creativity. All these factors we mean as psychological ones of facilitative interaction.

Levels of the formation of the argumentative discourse of adolescents at the stage of the experiment were characterized as:

- **a high level** – a stable communicative position taken by a pupil in the perception of the literary task, the combination of rational and emotional factors in the perception of the literary image, the presence of semantic interpretation;

- **a medium level** – instability of reflection by secondary school pupils of the situation of communication with English literature as a situation of facilitative interaction, uncertainty of the semantic interpretation of the novel proposed by the teacher;

- **a low level** – lack of understanding of the pupil the subject of communication, as well as misunderstanding of the content of the novel.

Based on the communicative position taken by the pupils, four groups of pupils were formed. ***The tasks consisted of three issues:***

1. What does the author express in this novel?

This question was asked with the aim to reveal the pupil's understanding of the novel as a whole and implicitly includes information on the way of penetration into the content of the novel from the standpoint of its author.

2. Why do events in a novel unfold precisely in such a sequence?

3. What does this novel mean?

The second and the third questions focus pupils on certain meaningful moments of the novel and allow to identify the ability of adolescents to comprehend and interpret these points of view. In addition, they could be the basis for creating a content model for the answer to the first question.

The results of *the first stage of the experiment* showed that in groups of pupils only some compositions were corresponded to a high level of the development of argumentative discourse. In compositions of schoolchildren who have the criteria of a high level of the development of argumentative discourse, there is a correlation between the position of the author and the pupil's own position, as well as comprehension of literary and artistic speech as a kind of language of communication, which provides the most complete (in comparison with compositions of the middle and low levels) representation of the literary layer: "subjectively", "emotionally personal", "figurative representations", "literary-historical" ones). It is necessary to note the imagery of the speech of pupils, who have developed the ability to imaginative perception of a novel. The use of a high-level vocabulary is an indicator of the fact of a creative process of comprehension of the literary image and of the means were used by pupils in compositions. Examples of compositions of schoolchildren who meet the criteria of high, medium and low levels of the development of pupils' discourse are given in the appendixes (see Appendices A, B).

Compositions of the middle and low levels are marked by a sharp imbalance of the components of the novel (substantive basis and semantic interpretation), which correspond to the lack or instability of pupils displaying the situation of reading a novel as a process of facilitative interaction. Pupils with a high level of the development of argumentative discourse attempted to abstract from the author's personality of the novel. Sometimes they replaced themselves with a certain abstract subject (for example, the hero of the novel), but in interpreting the content of the pupils did not depart from the events depicted by the author. Pupils who were in the position of the author of the novel, made an attempt to understand it in a broader literary context (see Appendix A). The literary-historical context in the form of knowledge of a pupil from the position of the author of the novel, the history of his/her writing, played a different role in the process of understanding the content of the novel: in some cases, the pupil is limited his/her understanding of the knowledge of this novel and did not expand the literary layer (in particular, his/her operational

and substantive components) or did not correlate the content of the novel with his/her own ideas that arose in his/her perception, that is, he/she did not depart from the position specified by the author of the text.

The distribution of solving literary creative tasks by pupils according to the levels of understanding of the content of the novel, as well as the levels of the developing of Cognitive abilities of adolescents is presented in Table 3.1.

Table 3.1

Percentage of solving by pupils literary creative tasks according to the levels of understanding the content of the novel (the first stage of the experiment)

Levels of the development of Cognitive abilities	Groups			
	E_1	E_2	C_1	C_2
A high level	14	17	15	16
A middle level	23	24	20	25
A low level	63	59	65	59

The analysis of the results in Table 3.1 allows us to draw the following conclusions. The influence of the pupil's communicative position on the character and the depth of understanding of the content of the novel and on the ability of adolescents to make dialogues are established. This was evidenced by a high level of the development of Cognitive abilities, fixed in the performance of tasks in which pupils were included into the situation of communication with a novel. The largest number of such pupils were in the third and the fourth groups (pupils were divided into groups during the analysis), that is, when the pupils were in the position of the hero and the author of the novel, although in general the number of adolescents with a high level of the development of Cognitive abilities in all groups was insignificant.

So, for pupils of all groups it was very difficult to reach a communicative position. We can assume that the experience of pupils according to this type of thinking is insignificant. This is confirmed by the refusal of some pupils to perform this task (for example, 13,8% in group E1 and 25,7% in group C2). The latter,

however, requires a more detailed examination, which emphasizes the need to study the procedural side of the functioning of the argumentative discourse of schoolchildren, including their mediating communicative and personal moments. This task was the main at the second stage of the experiment.

The second stage of the experiment had the aim to study the functioning of a comprehensive system of Cognitive abilities of pupils at secondary school in solving creative tasks by them, which was the main psychological factor of facilitative interaction at the English lessons. An adequate means at the same time was to use a conceptual model of discursive creative thinking in general and in the interconnection of all its components. Of particular importance was the study of the system of reflection as a mechanism for rethinking various types of stereotypes (intellectual, personal, communicative), which cause problem-conflict situations in the process of facilitative interaction.

The effectiveness of the proposed system of facilitative interaction on the development of Cognitive abilities of adolescents was determined on the basis of comparison of the initial and final stages of the experiment made by the method of content-semantic analysis of the solution of creative tasks by pupils at the lessons of the English language. Thus, the development of argumentative discourse was determined taking into account the values of the component "monologue utterances":

$$MV = \frac{1}{N} \sum_{i=1}^{n} mv_i \times 100,$$

where MV – the specific weight of the indicator "monological statements" in %;

mv_i (i= 1, 2, …, n) – the number of monological statements in the process of solving by i-pupil a creative task;

N – the total number of all pupils' statements when solving the problem.

Similarly, the values of other indicators that characterize the components of thinking activity were also counted.

In solving the creative task at the second stage of the research were taken by adolescents who compiled two samples: group 1, which included pupils of the experimental classes E1, E2; group 2, which includes pupils of C1, C2, who study by the traditional program of studying English. Pupils were offered a creative task: to organize a heuristic conversation after reading the text “A Modern Comedy”, book 1, by J. Galsworthy (1996) (see Appendix B). The effective aspect of solving the problem by pupils had different expressions: problem-solving gave pupils new knowledge (a content aspect), overcoming the cognitive dissonance due to the need to choose a certain personal position regarding the English language, finding creative opportunities for the development of pupils’ person.

The ambiguity of the conditions of the task determined the plurality of directions in the thinking search and determined the multiplicity of answers. The last ones were redrawn by us in the following way:

Level 1. Pupils do not understand the content of a creative task, do not attempt to solve it or even to analyze it. Pupils, as a rule, cannot understand the main idea of the problem, do not agree to make discussions, do not contact with other adolescents, etc.

Level 2. Pupils only repeat the content of the teacher’s creative task and concentrate their attention on the questions having been formulated, do not attempt to understand or to analyze the problem contained in the task, express and justify their own points of view according to this problem.

Level 3. Communication of pupils at this level has a clear focus on a particular novel, which, in the opinion of adolescents, can contribute to the solution of a creative task. Studying the problem, pupils compare the content of the task with the plot of a particular novel, that is, the process of solving the problem is of a formal nature, fixed on the subjective level of the literary layer. Pupils analyze or simply explain the choice of ways to solve the problem or proposed conclusions, correlating their opinion with only one particular novel, therefore, the process of solving the problem is not creative, but the decision cannot be considered by their own, because it was based on the conclusions drawn in a critical literature that corresponded to the

basic idea of a novel (in such a way schoolchildren do not express their own judgments, but only repeat ideas from English literature or a text).

Level 4. The analysis of the problem situation is carried out only on a superficial level. Pupils analyze only the content of the proposed task, do not attempt to concentrate their attention and attention of other schoolchildren on the problem. Therefore, the answers of schoolchildren are of a purely superficial nature, they cannot draw conclusions about the problem and, based on this, outline ways of creative problem solving. Given this, one cannot speak of the presence of a tolerant attitude towards the thoughts of partners of communication in the process of such a discussion, because the superficial nature of judgments does not provide opportunities for organizing productive communication of adolescents in order to organize creative problem-solving.

Level 5. Pupils are actively involved into the process of discussing the problem of a creative task proposed by a teacher or attempting to solve it independently, in the process of individual activity. Teenagers analyze the problem, which includes a creative task, compare their own points of view with the views of other pupils, have tolerant attitude to the partners of communication. But, at the same time, adolescents do not sufficiently justify their own positions and, therefore, do not attempt to develop them for further creative decision-making. Consequently, the process of solving the problem is limited only to the analysis of its content and comparison of expressed thoughts by pupils.

Level 6. Pupils explain and attempt to substantiate their own points of view on their proposed creative tasks, while actively collaborating with their partners of communication, saying their opinions and solving tasks offered by the partners in a tolerant way. But teens, analyzing their own statements and comparing them with the judgments of communication partners, do not lead the process of solving the creative task to the logical end.

Level 7. Pupils clearly justify their positions by analyzing their own points of view and judgments, comparing them with the thoughts of other partners in the process of communication. At the same time, pupils display tolerance in relation to

others, even quite opposite statements and means of solving creative tasks by adolescents. Pupils actively argument their positions, logically explaining and justifying them. Pupils do not deny cooperation with their partners in communication in the process of solving problematic creative tasks within small micro-groups and the whole class.

First of all, it should be taken into account that 87% of pupils in group 1 and 83% of group 2 did not perceive proposed situation as problematic one and only after several explanations of teachers attempted to make the continuation of the task. The percentage distribution of answers of adolescent by their types was proposed in Table 3.3.

Table 3.3

Distribution of adolescents' answers when they were solving a creative task (in %)

The type of answers	Percentage distribution of answers	
	Group 1	Group 2
Level 1	31	20
Level 2	28	21
Level 3	11	23
Level 4	16	21
Level 5	9	7
Level 6	2	8
Level 7	3	0

As Table 3.3 shows, pupils of groups 1 and group 2 did not succeed in solving this task, because they did not understand the meaning of the problem situation, did not realize its meaning, so attempts to complete the task did not lead to a positive result. Teens (despite different English language programs) cannot creatively approach their own decision-making, make unconscious steps, although having a certain orientation, do not contribute to the logical completion of the problem-solving task proposed by the teacher.

The degree of the development of discourse of adolescents is the results of the comparison of the coefficients of the integrative, modified and contextual images in

the stories of schoolchildren (the more often the pupils show in the story the integrative image in relation to the contextual and modified, the higher the degree of the development of the argumentative discourse of the pupil). Contextual we considered an image that clearly coincides with the present way in this context. A modified image was created on the basis of the proposed creative task, that was a logical continuation of the contextual image. An integrative image arises as a result of a combination of contextual and modified images, in addition, the pupil draws it with elements of imagination and creativity.

The coefficient of the integrative image was calculated by the formula:

$$I = \frac{n_i}{N} x \ 100\%$$

where n_i – number of pupils' sayings which include the integrative image;

N – the number of all statements in the pupil's story.

The coefficients of modified (M) and contextual (C) images were calculated by analogy.

The average values of the coefficients of modified, contextual and integrative images in two groups of pupils depending on the type of their answers were shown in Table.

As can be seen from Table 3.4, in pupils' stories, schoolchildren of group 1 and group 2 used mainly contextual, that is, given by the teacher, images, as well as modified images, which are a logical continuation of the contextual ones. Integrative images occurred only in some stories of schoolchildren. Therefore, we can conclude that, generally speaking, the low level of the development of argumentative discourse of schoolchildren of groups 1 and 2 is not connected with specialized program of studying English.

Pupils in their stories provide an opportunity to analyze the three components identified in the cognitive structure: "literary content", "communicative position" and "a real communication".

The component “a literary content” contains the following levels: indeterminate, subject, story-shaped, emotional-personal, level of notation, general literary, literary-historical, general-cultural. The specific weight of each level was calculated, that is, the percentage ratio of the indicator of this level to the sum of the indicators of all levels of the component (the indicator of each level is the number of statements of the pupil in which he/she finds the expression).

For example, the specific gravity of the indefinite level is determined by the formula:

$$V = \frac{R_{нев}}{100\%\ \ R_{нев} + R_{пр} + R_{с\text{-}о} + R_{поз} + R_{з.літ} + R_{л\text{-}і} + R_{з.кул} + R_{е\text{-}о}} \quad 100\%$$

$R_{пр}$ – the number of pupils’ statements in the process of solving the creative task in which the object type is finds expression;

$R_{с\text{-}о}$ – the number of pupils’ statements in the process of solving the creative task in which the story-like type is found;

$R_{е\text{-}о}$ – the number of pupils’ statements in the process of solving the creative task, in which the emotional-personality type is found;

$R_{поз}$ – the number of statements of schoolchildren in the process of solving the creative task, in which the type of notation is found;

$R_{з.літ}$ – the number of pupils’ statements in the process of solving the creative task in which the general-literary type expression is found;

$R_{л\text{-}і}$ – number of statements of schoolchildren in the process of solving the creative task, which the expression of literary-historical type is found;

$R_{з.кул}$ – the number of pupils’ statements in the process of solving the creative task, in which a general-cultural type is found.

So, facilitative interaction requires active reflection with the aim to solve creating problem situations that should be solved on the basis of a comprehensive

analysis of these situations, suggestions, comparisons, etc. Facilitative interaction is used mainly at the stage of comprehension of new material. Based on the questions of this type of conversation, pupils establish internally objective connections between the objects themselves. The question should be put in relations to real facts obtained in the process of observation, when reading the textbook or reference materials.

A significant place is facilitative interaction in the process of generalization and systematization of knowledge. Exercises with the component of facilitative interaction can also be proposed for pupils' homework. Usually, on the basis of such exercises, pupils are led to find the correct answer, solve the problem, do necessary conclusions. The most expedient facilitative interaction is proved that all pupils have mastered the training material well and the whole class participates in it. Useful is a facilitative interaction based on subjective and abstract visibility (Tables, Diagrams).

Table 3.4

Average values of coefficients of modified, contextual and integrative images (in%) in groups 1, 2 depending on the type of answers of adolescent (the second stage of the experiment)

Type of the answer	Group 1			Group 2		
	value of coefficients			value of coefficients		
	modified image	contextual image	integrative image	modified image	contextual image	integrative image

Level 1	0	100	0	0	100	0
Level 2	35	65	0	32	68	0
Level 3	24	69	7	38	51	11
Level 4	23	69	8	27	61	12
Level 5	41	44	15	38	49	13
Level 6	35	49	16	26	60	14
Level 7	27	55	18	31	57	12

Also problematic questions create contradictions between the facts available to pupils about the knowledge and new facts, which can not be explained on the basis of this knowledge. To solve such contradictions pupils need new knowledge which they find on the basis of their own research – objective or logical ones.

In organizing the facilitative interaction, it is important not only to emphasize on the content of the questions, but also on their form. Questions should be short and accurate, their task is to orient pupils to reproduce knowledge or to search a creative answer. Alternative questions need to be answered “yes” or “no” should not be formulated; questions should not give pupils a correct answer. If the pupils did not understand the question, it is necessary to formulate it shorter, more accessible. Asking questions, the teacher carefully, without interrupting, listens to the answer, then turns to the class with a proposal to complete or correct the mistakes.

The data in Table 3.5 show that the mean values of the specific gravity of all levels of the “literary content” component do not differ substantially in groups 1 and 2. Although the significant advantage of the “notation” for pupils in group 1 in relation to group 2, given their nature, indicates on the fact that they provide an emotional attitude to the literary work due to the holistic perception of internal connections and the creation on this basis of a ready-made content constructor, which manifests itself in the continuation of the literary task.

Table 3.5

Specific gravity of the levels of the “literary content’s” parameter (in %) in groups of pupils 1, 2 (the second stage of the experiment)

Levels of the "literary content's" component	Specific gravity of the levels of the "literary content's" component Average values for groups	
	group 1	group 2
Unspecified	5	3
Objective	5	6
Plot-shaped	35	38
Emotional and personal	27	31
Level of notation	21	9
General Literary	4	8
Literary and historical	3	5
General cultural	0	0

In general, adolescents are characterized by an awareness of the content of the literary work, due to the accumulation of representations and the expansion of the spectrum of spheres of reality, where they arise (subject, storyline-like levels, level of notation, the awareness of which leads in accordance with the appearance of representations on the emotional-personal, general literary and literary-historical levels). Integrative processes that would be completed by a holistic understanding of the meaning of the work (including the comprehension of his ideas at the general cultural level) are not expressed.

We will analyze the data on the component "communicative position" (see Table 3.6). The structure of this component contains the following positions: the position from the outside, the position of inclusion, the mediated position, the position of understanding, which, in turn, has such components – the position of the author of the work, one of the heroes of the work, the position of the merger with the literary work, the position of the heroes of the work. All solutions to the creative situation proposed by the pupils were analyzed for the subject of a communicative position (see Appendices A, B). The relative weight of each position in the narratives of the students was calculated according to a formula similar to the formula for calculating the specific gravity of the components of the literary content component (see above).

The obtained results allow to note the absence of significant differences in the substructure of the "communicative position" component in both groups of pupils. Attention is drawn to the low quantitative results of pupils and group 1 and group 2 on such substructures of the parameter "communicative position" as the position of the heroes of the novel, the merger with the literary novel, the position of one of the heroes of the work and our position.

This suggests that pupils usually do not realize themselves as subjects of perception and understanding of the content of the reading, are not able to conduct an internal dialogue with the heroes or the author of the work, the students do not realize and explicate their own experiences, thoughts, caused by reading that speaks of the low level of development of Cognitive abilities of adolescents of both groups.

Table 3.6

Specific weight of substructures of the "communicative position" component (in %) in groups of pupils 1, 2 (the second stage of the experiment)

The substructure of the "communicative position" component	Specific weight of substructures of the "communicative position" component (average values in group)	
	Group 1	Group 2
Position from the outside	35	42
Inclusion position	18	11
Position of being mediated	11	13
Position of understanding	28	27
a) the author of the novel	2	4
b) one of the heroes of the novel	26	23
Merge position	3	2
The position of the heroes of the novel	7	5

The pupil's focus on communication was fixed by indicators of the communicative-cooperative sphere, the quality of communication is the parameter of "a real communication" (see Table 3.7).

In the communication of adolescents and the first and second groups clearly expressed the tendency to jointly solve the task posed by the teacher. These aspects of the "real communication" component, as "collective decision-making" and

“collective development”, are higher in group 1. Pupils in group 2 were more likely to be discontented in the quest for thought, as the results of the “individual output” component (9, 03 in group 2 and 4.56 in group 1). In group 2 there was a greater number of manifestations of aggression in relation to communication partners: 5.41 in group 2 and 1.18 in group 1.

In group 1 the integrative indicator of communication development is better expressed: 2.14 versus 0.6 in group 2 (calculated on the basis of the ratio of the sum of the indicators of individual and collective development to the sum of indicators of individual output and individual refusal of the decision).

Table 3.7

The value of the substructures of a “real communication” component of adolescents in groups 1, 2 (the second stage of the experiment)

Substructures of a “real communication” component	Average values of component’s substructures (in balls)	
	Group 1	Group 2
Collective acceptance of the decision	8,05	6,03
Collective development	9,02	6,28
Individual development	5,36	5,04
Individual way out	4,56	9,03
Collective agreement	8,11	5,51
Collective summary	9,13	7,82
Aggression	5,41	1,18
Individual disclaimer	2,14	6,25

According to the values of “collective decision-making” and “collective development” indicators, group 1 also shows better results. The joint decision by the students of the literary creative task allowed to observe the process of understanding their English work from the emergence of initial representations to the display of certain meaningful moments. It is no coincidence that the most precise characteristics of the literary work (for example, “satirical”, “tragic”) appear not at

the beginning of the discussion, but in the process of solving the problem as a result of comprehension by pupils of various versions of the interpretation of the novel.

So, at the first and the second stages of the experiment the following was set:

1) there is a relationship between the nature of the subject-literary environment of adolescents and the understanding of them the literary-figurative content of the novel, which influences the development of providing the discourse by them;

2) adolescents manifest the age-old tendency to decrease interest in English literature, indicating a decrease in the effectiveness of the traditional, oriented on the development of primarily content of cognitive activity (knowledge, skills, abilities), the system of influence on this age category of pupils;

3) adolescents, as a rule, cannot critically evaluate a novel, make their own conclusions about the development of events and characterize the main characters of the novel, express a personal point of view according to this novel in general. This suggests that pupils are not able to conduct an “internal dialogue” with the text, that is, the discourse of schoolchildren does not develop properly due to either a regular curriculum or a specialized English language course;

4) within the school education, through the introduction of means of expanding the literary environment into the learning process at the English lessons (what are the creative tasks we are proposing) is the provision of psychological and pedagogical conditions for the development of discourse of pupils.

On the basis of these conclusions, we can put the task of implementing the system of the development of discourse of schoolchildren in the formative experiment through conducting heuristic conversations according to the texts of English literature. We predicted that the system of pedagogical influences that was used in the process of forming experiment should ensure the development of discourse of adolescents due to a change of their personal attitude to English literature.

The reliability of the differences in the degree of formation of the discourse of adolescents before and after the use of the system of molding influences was checked in accordance with the formula of the criterion of signs.

Thus, in an ascertaining experiment, the understanding of the content of a product at the level of creating a holistic model based on the ideas that arose earlier does not occur either in the experimental, nor in the control classes, and at the end of the forming experiment – only in classes E1, E2. The increase in the models by volume (from 2 and 5 in E1, E2 in the set experiment to 7 and 6, respectively, in the forming one) and their approximation to the end of the solution of the problem is characterized by a greater degree of generalization in them of previous representations, which suggests the best development of the dialogue of thinking of pupils of experimental classes at the end of the forming experiment.

Consequently, the analysis of the data shows that the structural and dynamic organization of cognitive activity, in particular the representation in it of the discourse, provided a higher level of understanding and analysis of the content of English novels by adolescents than was achieved in the experiment. This is evidenced by the fact that at the end of the formative experiment, the most correct answers (levels 6 and 7) reached 92% of E1 and 88% of E2 pupils, and in control classes only 13% and 17% respectively (see Table 3.8).

Table 3.8

The distribution of answers of schoolchildren of control and experimental classes on the questions of creative tasks in terms of their accuracy (in%)

The type of an answer	The first stage of the experiment				The last stage of the experiment			
	E1	E2	C1	C2	E1	E2	C1	C2
Level 1	44	41	42	44	0	0	20	27
Level 2	31	36	38	32	0	0	18	25
Level 3	15	13	10	16	0	0	26	14
Level 4	3	4	5	3	0	1	9	7
Level 5	2	3	3	2	8	11	14	10
Level 6	5	3	2	3	35	30	10	12
Level 7	0	0	0	0	57	58	3	5

In general, the comparison of the responses of schoolchildren of control and experimental classes during the establishing and forming experiments confirms the effectiveness of the developed system of pedagogical influences of teachers on

pupils at English lessons, and also testifies to qualitative changes in the English-speaking environment, which created the prerequisites for the formation of discourse of adolescents.

Thus, pupils of experimental classes at the end of the forming experiment are actively discussing their creative tasks, suggesting their own ways of resolving them, formulating doubts about the expressed previous points of view of the partners in communication, substantiating their own position or opinion, suggesting their own way of solving the problem or a creative task, showing the tolerate thoughts according to other adolescents, while using these tasks was acceptable for them. Consequently, the results of the forming experiment proved the formulated hypothesis of the research that the teacher's consideration of the linguistic means of the introduction of the discourse would most likely influence the perception and understanding of foreign language texts.

The factors that have the greatest influence on the activation of the thinking activity of the person and the development of cognitive abilities of adolescents have been clarified:

a) problem set by the ambiguity of the conditions of the creative task and, thus, activates the pupils' intellectual activity;

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The statistical treatment of the results of the research confirmed that the proposed pedagogical influences really contribute the development of the discourse of adolescents. Therefore, their use at the English lessons the methods and means which are even necessary in order to enhance the thinking activity and dialogue interaction facilitated the formation of a teen's creative personality.

Conclusions to the second Chapter

During the academic 2024-2025 year we conducted the educational process in Rivne Lyceum “Harmony” taking into account linguistic means of providing the principles of Cognitive Psychology in experimental groups. The process of formation of skills in general and reading skills in each cycle of classes was carried out in two directions. **The First Principle of Cognitive Psychology** involves the process of training and development of individual skills, speech operations and actions necessary to understand the reading, on the material of selected texts. Then on this basis we turn to the practice of reading texts of the same subject and on the basis of the same lexical and grammatical material. The First Principle of Cognitive Psychology is traditional and we will not stop there in details. The second direction is an additional linguistic practice in reading texts, the linguistic material of which has not previously been studied. These texts are available to pupils through the help of the hint at reading.

The First Principle of Cognitive Psychology is introducing new grammatical and lexical materials and performing any exercises aimed at developing the skills of manipulating with this material. If exercises are grammatically oriented, then grammatical forms that are foreseen to be entered in this cycle of classes are worked out in them. The possession of these grammatical forms in terms of reading is necessary to understand the read at the level of sentences, and not the text as a whole. In grammatically directed exercises, a certain number of new vocabularies is also assimilated in passing. It is introduced in familiarity with the new grammar and is memorized by the numerous visual perceptions of words. If the cycle does not foresee the introduction of a new grammar, and the texts for reading are based mainly on the known grammar, then exercises aimed at assimilating the lexical units of the receptive minimum are used.

The Second Principle of Cognitive Psychology is based on reading using the previously mentioned reading with the supports.

In our research we proposed the examples of such exercises-tasks that will help to more clearly and specifically present the practical use of these lingual-methodological principles of Cognitive Psychology.

Task № 1. *Replace the distant location of the elements of the selected structures on the contact without changing the meaning of the utterance*.

Task № 2. 1. *Set the syntactic-semantic link between the parts of the name attribute relationship.* 2. *Replace the underlined parts of the text with equivalent nominal attribute relationships.*

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Task № 5. 1. *Find the part of the text that is under the logical emphasis, rebuild the text by removing the emphasis*. 2. *Rebuild the next part of the text by changing its actual division, place the name group that is entered in the fraction under the logical accent by to.*

For the formation of phrasal stereotypes underlying the syntactic bias, the practice of changing / recognizing the function of individual elements of the sentence structure is necessary. Therefore, taking into account the aforementioned provision, we will propose possible exercises aimed at developing the skills of using prediction mechanisms when reading in a foreign language (the proposed exercises are designed for pupils with a lack of knowledge of a foreign language). For example:

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Exercise 2. Write all possible adjectives that can be used with nouns road, forest, river, etc.

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Exercise 9. Find the ending sentence.

Exercise 10. Among the proposed sentences of group A find those that could precede the sentences from group B.

The results of *the first stage of the experiment* showed that in groups of pupils only some compositions were corresponded to a high level of the development of argumentative discourse. In compositions of schoolchildren who have the criteria of a high level of the development of argumentative discourse, there is a correlation between the position of the author and the pupil's own position, as well as comprehension of literary and artistic speech as a kind of language of communication, which provides the most complete (in comparison with compositions of the middle and low levels) representation of the literary layer: "subjectively", "emotionally personal", "figurative representations", "literary-historical" ones). It is necessary to note the imagery of the speech of pupils, who have developed the ability to imaginative perception of a novel. The use of a high-level vocabulary is an indicator of the fact of a creative process of comprehension of the literary image and of the means were used by pupils in compositions.

The second stage of the experiment had the aim to study the functioning of a comprehensive system of argumentative discourse of pupils at secondary school in solving creative tasks by them, which was the main psychological factor of facilitative interaction at the English lessons. An adequate means at the same time was to use a conceptual model of discursive creative thinking in general and in the interconnection of all its components. Of particular importance was the study of the

system of reflection as a mechanism for rethinking various types of stereotypes (intellectual, personal, communicative), which cause problem-conflict situations in the process of facilitative interaction.

The ambiguity of the conditions of the task determined the plurality of directions in the thinking search and determined the multiplicity of answers. The last ones were redrawn by us in the following way:

Level 1. Pupils do not understand the content of a creative task, do not attempt to solve it or even to analyze it. Pupils, as a rule, can not understand the main idea of the problem, do not agree to make discussions, do not contact with other adolescents, etc.

Level 2. Pupils only repeat the content of the teacher's creative task and concentrate their attention on the questions having been formulated, do not attempt to understand or to analyze the problem contained in the task, express and justify their own points of view according to this problem.

Level 3. Communication of pupils at this level has a clear focus on a particular novel, which, in the opinion of adolescents, can contribute to the solution of a creative task. Studying the problem, pupils compare the content of the task with the plot of a particular novel, that is, the process of solving the problem is of a formal nature, fixed on the subjective level of the literary layer. Pupils analyze or simply explain the choice of ways to solve the problem or proposed conclusions, correlating their opinion with only one particular novel, therefore, the process of solving the problem is not creative, but the decision cannot be considered by their own, because it was based on the conclusions drawn in a critical literature that corresponded to the basic idea of a novel (in such a way schoolchildren do not express their own judgments, but only repeat ideas from English literature or a text).

Level 4. The analysis of the problem situation is carried out only on a superficial level. Pupils analyze only the content of the proposed task, do not attempt to concentrate their attention and attention of other schoolchildren on the problem. Therefore, the answers of schoolchildren are of a purely superficial nature, they cannot draw conclusions about the problem and, based on this, outline ways of

creative problem solving. Given this, one cannot speak of the presence of a tolerant attitude towards the thoughts of partners of communication in the process of such a discussion, because the superficial nature of judgments does not provide opportunities for organizing productive communication of adolescents in order to organize creative problem-solving.

Level 5. Pupils are actively involved into the process of discussing the problem of a creative task proposed by a teacher or attempting to solve it independently, in the process of individual activity. Teenagers analyze the problem, which includes a creative task, compare their own points of view with the views of other pupils, have tolerant attitude to the partners of communication. But, at the same time, adolescents do not sufficiently justify their own positions and, therefore, do not attempt to develop them for further creative decision-making. Consequently, the process of solving the problem is limited only to the analysis of its content and comparison of expressed thoughts by pupils.

Level 6. Pupils explain and attempt to substantiate their own points of view on their proposed creative tasks, while actively collaborating with their partners of communication, saying their opinions and solving tasks offered by the partners in a tolerant way. But teens, analyzing their own statements and comparing them with the judgments of communication partners, do not lead the process of solving the creative task to the logical end.

Level 7. Pupils clearly justify their positions by analyzing their own points of view and judgments, comparing them with the thoughts of other partners in the process of communication. At the same time, pupils display tolerance in relation to others, even quite opposite statements and means of solving creative tasks by adolescents. Pupils actively argument their positions, logically explaining and justifying them. Pupils do not deny cooperation with their partners in communication in the process of solving problematic creative tasks within small micro-groups and the whole class.

The factors that have the greatest influence on the activation of the thinking activity of the person and the development of cognitive abilities of adolescents have been clarified:

a) problem set by the ambiguity of the conditions of the creative task and, thus, activates the pupils' intellectual activity;

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Conclusions

In our research we formulated the following ***conclusions***:

I. Cognitive factors and individual differences in language processing are important aspects of research in Linguistics, Psychology, and Cognitive science. They are significant for understanding the differences and performances of diverse individuals in the language processing process. Firstly, cognitive factors play a key role in language processing. Cognitive factors include individuals' psychological processes such as attention, memory, and thinking, which play a crucial role in language understanding, production, and use. For example, attention helps individuals filter out important language information, memory enables individuals to store and recall past language experiences, and thinking allows individuals to understand and analyze complex language structures and meanings. In conclusion, the intricate interplay between cognitive factors and individual learner variability underscores the multifaceted nature of language processing. By delving deeper into these factors and their diverse manifestations across individuals, we gain a more nuanced understanding of the characteristics and performance profiles exhibited during language acquisition, highlighting the transformative impact that quality language education and language methodology can have on educational outcomes and global communication.

II. Cognitive processes are derived into two types named basic and higher. Basic cognitive processes constitute the system with information processed and integrated:

- **Perception** consists of the initial stage of information processing, encompassing the active capture, interpretation, and construction of meaning from sensory stimuli. This fundamental cognitive function enables us to transform raw sensory data received through our various organs (eyes, ears, nose, tongue, and skin) into a coherent understanding of the world around us.

- **Attention.** During information processing, humans actively direct their attention and cognitive resources to specific stimuli.

- **Information processing** facilitates the transformation of captured information into a compiled format.

- **Memory.** The system retains the detected information for future processing, which can occur on a short-term or long-term basis.

The second type of cognitive process performs in more complex way:

- **Thinking** convergence of processed information facilitates the formation of judgments, deductions, and ultimately, learning. This intricate cognitive process, termed reasoning, can manifest in various forms, including inductive, deductive, and hypothetical-deductive reasoning.

- **Executive functions** play a critical role in behaviour management through strategic planning, impulse control, and informed decision-making. This enables individuals to guide their behaviour towards the achievement of medium- or long-term goals, fostering a resistance to impulsive actions.

- **Learning** success hinges upon our proficiency in three key cognitive domains: attentional control, memory storing, and memory retrieval.

- **Motivation** is a process of directed engagement, whereby an individual focuses their behavior and energy on a specific topic or interest.

III. During the academic 2024-2025 year we conducted the educational process in Rivne Lyceum “Harmony” taking into account linguistic means of providing the principles of Cognitive Psychology in experimental groups. The process of formation of skills in general and reading skills in each cycle of classes was carried out in two directions. **The First Principle of Cognitive Psychology** involves the process of training and development of individual skills, speech operations and actions necessary to understand the reading, on the material of selected texts. Then on this basis we turn to the practice of reading texts of the same subject and on the basis of the same lexical and grammatical material. The First Principle of Cognitive Psychology is traditional and we will not stop there in details. The second direction is an additional linguistic practice in reading texts, the linguistic material of which has not previously been studied. These texts are available to pupils through the help of the hint at reading.

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References

1. Закон України «Про вищу освіту» від 01.07.2014 р. № 1556-VII. (2014 р.). https://zakon.rada.gov.ua/laws/show/1556-18#Text
2. Державна програма «Вчитель» від 28.03.2002 р. № 379 (2002 р.). https://zakon.rada.gov.ua/laws/show/379-2002-п#Text
3. Стратегія розвитку вищої освіти в Україні на 2022-2032 роки (2022). https://mon.gov.ua/osvita-2/vishcha-osvita-ta-osvita-doroslikh/strategiya-rozvitku-vishchoi-osviti-v-ukraini-na-2022-2032-roki
4. Adachi, P. & Willoughby, T. (2015). Interpreting effect sizes when controlling for stability effects in longitudinal autoregressive models: Implications for psychological science. *European Journal of Developmental Psychology, 12(1)*, 116–128. https://doi.org/10.1080/17405629.2014.963549.
5. Alderson, J. C., Nieminen, L. & Huhta, A. (2016). Characteristics of weak and strong readers in a foreign language. *The Modern Language Journal, 100(4)*, 853–879. https://doi.org/10.1111/modl.12367.
6. Arrington, C.N., Kulesz, P.A., Francis, D.J., Fletcher, J.M. & Barnes, M.A. (2014). The contribution of attentional control and working memory to reading comprehension and decoding. *Scientific Studies of Reading, 18*(5), 325–346. https://doi.org/10.1080/10888438.2014.902461.
7. Astle, D. & Scerif, G. (2011). Interactions between attention and visual short-term memory (VSTM): What can be learnt from individual and developmental differences? *Neuropsychologia, 49*, 1435–1445. https://doi.org/10.1016/j.neuropsychologia.2010.12.001.
8. Berninger, V.W. & Abbott, R.D. (2010). Listening comprehension, oral expression, reading comprehension, and written expression: Related yet unique language systems in grades 1, 3, 5, and 7. *Journal of Educational Psychology, 102(3)*, 635–651. https://doi.org/10.1037/a0019319.

9. Bucci, W., Maskit, B. & Murphy, S. (2016). Connecting emotions and words: The referential process. *Phenomenology and the Cognitive Sciences, 15(3),* 359–383. https://doi.org/10.1007/s11097-015-9417-z.

10. Carhart-Harris, R.L., Leech, R, Hellyer, P.J., Shanahan, M., Feilding, A., Tagliazucchi, E., Chialvo, D.R., & Nutt, D. (2014). The entropic brain: a theory of conscious states informed by neuroimaging research with psychedelic drugs. *Front. Hum. Neurosci, 8* (20). doi: 10.3389/fnhum.2014.00020

11. Chen, J. (2016). *The Entropy Theory of Mind*. In: The Unity of Science and Economics. Springer, New York, NY

12. Cheng, Y., Zhang, J., Wu, X., Liu, H. & Li, H. (2016). Cross-lagged relationships between morphological awareness and reading comprehension among Chinese children. *Frontiers in Psychology, 7,* 1379. https://doi.org/10.3389/fpsyg.2016.01379.

13. Conners, F.A. (2009). Attentional control and the simple view of reading. *Reading and Writing, 22,* 591–613. https://doi.org/10.1007/s11145-008-9126-x.

14. Cover, T. & King, R. (1978). A convergent gambling estimate of the entropy of English. *Information Theory, IEEE Transactions on., 24* (4), 413–421.

15. Cui, G., Wang, Y. & Zhong, X. (2021). The Effects of Suprasegmental Phonological Training on English Reading Comprehension: Evidence from Chinese EFL Learners. *Journal of Psycholinguist Research, 50(2),* 317–333. https://doi.org/10.1007/s10936-020-09743-2.

16. Dale, R. & Duran, N.D. (2011). The cognitive dynamics of negated sentence verification. *Cognitive Science*, *35*(5), 983–996.

17. Drigas, A. & Karyotaki, M. (2017). Attentional control and other executive functions. *International Journal of Emerging Technologies in Learning (iJET), 12*(3), 219–233. https://doi.org/10.3991/ijet.v12i03.6587.

18. Dubovyk, Svitlana H., Mytnyk, Alexander Ya., Mykhalchuk, Nataliia O., Ivashkevych, Ernest E. & Hupavtseva, Nataliia O. (2020). Preparing Future

Teachers for the Development of Students' Emotional Intelligence. *Journal of Intellectual Disability – Diagnosis and Treatment, 8(3),* 430–436. https://doi.org/10.6000/2292-2598.2020.08.03.20.

19. Dubovyk, Svitlana H., Mytnyk, Alexander Ya., Mykhalchuk, Nataliia O, Rashkovska, Ilona V. & Nabochuk, Alexander Yu. (2022). Training teachers to teach social competence to younger pupils. *Astra Salvensis, 22*(1), 457 – 470. https://astrasalvensis.eu/?mdocs-file=2481
20. Ehri, L.C., Nunes, S.R., Willows, D.M., Schuster, B.V., Yaghoub-Zadeh, Z. & Shanahan, T. (2001). Phonemic awareness instruction helps children learn to read: Evidence from the National Reading Panel's meta-analysis. *Reading Research Quarterly, 36,* 250–287. https://doi.org/10.1598/RRQ.36.3.2.
21. El-Zawawy, A.M. (2021). On-Air Slips of the Tongue: A Psycholinguistic-Acoustic Analysis. *Journal of Psycholinguist Research, 50(3),* 463–505. https://doi.org/10.1007/s10936-020-09755-y.
22. Engle, R. W. (2002). Working memory capacity as executive function. *Current Directions in Psychological Science, 11,* 19–23. https://doi.org/10.1111/1467-8721.00160.
23. Falé, I., Costa, A. & Luegi, P. (2016). Reading aloud: Eye movements and prosody. *Speech Prosody,* 169. https://doi.org/10.21437/SpeechProsody.2016-169.
24. Foucault, M. (1972). *Archaeology of knowledge and the discourse on language*. New York : Pantheon.
25. Galsworthy J. A Modern Comedy. B. I. The White Monkey. Moscow: Foreign Languages Publishing House, 1996. 328 p.
26. Gathercole, S.E., Pickering, S.J., Ambridge, B. & Wearing, H. (2004). The structure of working memory from 4 to 15 years of age. *Developmental Psychology, 40*(2), 177–190. https://doi.org/10.1037/0012-1649.40.2.177.
27. Greco, M., Canal, P., Bambini, V. & Moro, A. (2020). Modulating "Surprise" with Syntax: A Study on Negative Sentences and Eye-Movement Recording.

Journal of Psycholinguist Research, 49(3), 415–434. https://doi.org/10.1007/s10936-020-09691-x.

28. Guevara Erra, R., Mateos, D.M., Wennberg, R., Perez, & Velazquez, J.L. (2016). Statistical mechanics of consciousness: maximization of information content of network is associated with conscious awareness. *Phys. Rev. E. 94* (052), 402. doi: 10.1103/PhysRevE.94.052402
29. Hamedi, S.M. & Pishghadam, R. (2021). Visual Attention and Lexical Involvement in L1 and L2 Word Processing: Emotional Stroop Effect. *Journal of Psycholinguist Research, 50(3),* 585–602. https://doi.org/10.1007/s10936-020-09709-4.
30. Hogan, T.P., Adlof, S.M. & Alonzo, C.N. (2014). On the importance of listening comprehension. *International Journal of Speech-Language Pathology, 16(3),* 199–207. https://doi.org/10.3109/17549507.2014.904441.
31. Jacqueline Lubin, Edward A. Polloway (2016). Mnemonic Instruction in Science and Social Studies for Students with Learning Problems: A Review. Learning Disabilities. *A Contemporary Journal, 14*(2), 207–224.
32. Jung, C.G. (1923). *Psychological types; or, The psychology of individuation.* London : Paul, Trench, Trubner.
33. Jung, C.G. (1969a). Archetypes and the Collective Unconscious [sic], *Collected Works of C.G. Jung* (Vol. 9, Part 1), Princeton, N.J. : Princeton University Press.
34. Jung, C.G. (1969b). Aion: Researches into the Phenomenology of the Self, *Collected Works of C.G. Jung* (Vol. 9, Part 2), Princeton, N.J. : Princeton University Press.
35. Jung, C.G. (1971). Psychological Types, *Collected Works of C.G. Jung* (Vol. 6), Princeton, N.J. : Princeton University Press.
36. Lacan, J. (1966). The Insistence of the Letter in the Unconscious. *Yale French Studies, 36/37,* 112–147.

37. Mateos, D.M., Guevara Erra, R., Wennberg, R., & Perez Velazquez, J.L. (2018). Measures of entropy and complexity in altered states of consciousness. *Cogn Neurodyn., 12* (1), 73–84. doi: 10.1007/s11571-017-9459-8

38. McCarthy, M. & O'Dell, F. (2017). English Vocabulary in Use. Fourth Edition. Cambridge: Cambridge University Press. 188 p.

39. Murphy, S., Melandri, E. & Bucci, W. (2021). The Effects of Story-Telling on Emotional Experience: An Experimental Paradigm. *Journal of Psycholinguist Research, 50(1),* 117–142. https://doi.org/10.1007/s10936-021-09765-4.

40. Mykhalchuk, N. & Bihunova, S. (2019). The verbalization of the concept of "fear" in English and Ukrainian phraseological units. *Cognitive Studies | Études cognitives, 19*, 11. Варшава (Польща). https://doi.org/10.11649/cs.2043 [in English].

41. Mykhalchuk, N.O. & Ivashkevych, E.E. (2019). Psycholinguistic Characteristics of Secondary Predication in Determining the Construction of a Peculiar Picture of the World of a Reader. *Psycholinguistics. Психолінгвістика. Психолингвистика: зб. наук. праць. Серія: Психологія, 25(1),* 215–231. Переяслав-Хмельницький: ФОП Домбровська Я.М. 444 с. DOI: 10.31470/2309-1797-2019-25-1-215-231

42. Mykhalchuk, Nataliia & Ivashkevych, Ernest (2021). The empirical research of understanding contemporary poetry by future philologists. *Social Science Research Network (SSRN).* https://ssrn.com/abstract=3912159.

43. Mykhalchuk, N.O. & Kryshevych, O. (2019). The peculiarities of the perception and understanding of Sonnets written by W.Shakespeare by the students of the Faculty of Foreign Languages. *Psycholinguistics. Психолінгвістика. Психолингвистика: зб. наук. праць. Серія: Психологія, 26(1),* 265–285. Переяслав-Хмельницький: ФОП Домбровська Я.М. 402 с. DOI: 10.31470/2309-1797-2019-26-1-265-285

44. Mykhalchuk, Nataliia & Khupavsheva, Natalia (2020). Facilitation of the Understanding of Novels by Senior Pupils as a Problem of Psycholinguistics.

Psycholinguistics. Психолінгвістика. Психолингвистика: зб. наук. праць. Серія: Психологія, 28(1), 214–238. Переяслав-Хмельницький: ФОП Домбровська Я.М. 444 с. DOI: https://doi.org/10.31470/2309-1797-2020-28-1-214-238

45. Mytnyk, Alexandr, Matvienko, Olena, Guraliuk, Andrii, Mykhalchuk, Nataliia & Ivashkevych, Ernest (2021). The development of constructive interaction skill as a component of social success of junior pupil. *Rēzeknes Tehnoloģiju akadēmija. Proceedings of the International Scientific Conference, II,* 387–401. Vilnius (Lithuania). https://doi.org/10.17770/sie2021vol2.6406.
46. Mykhalchuk, Nataliia, Levchuk, Pavlo, Ivashkevych, Ernest, Yasnohurska, Liudmyla & Cherniakova, Olena (2021). Psycholinguistic specifics of understanding by Ukrainian students the principles of nomination of linguocultural models "clothing" in English and Ukrainian. *Psycholinguistics. Психолінгвістика. Психолингвистика, 29(2),* 195–237. Переяслав-Хмельницький: ФОП Домбровська Я.М. DOI: https://doi.org/10.31470/2309-1797-2021-29-2-195-237
47. Mykhalchuk, Natalia, Bihunova, Svitozara, Fridrikh, Alla, & Vietrova, Iryna (2021). The cross-cultural understanding of metaphors in the information technology sphere. *Cognitive Studies | Études cognitives, 2021(21),* 24–75. https://doi.org/10.11649/cs.2475
48. Mykhalchuk, Nataliia, Ivashkevych, Ernest, Nohachevska, Inna, Nabochuk, Alexander & Voitenko, Oksana (2021). Psycholinguistic Mechanisms of Understanding Contemporary Poetry by Future Philologists. *PSYCHOLINGUISTICS, 30(1),* 139–179. https://doi.org/10.31470/2309-1797-2021-30-1-139-179. Retrieved from https://psycholing-journal.com/index.php/journal/article/view/1205
49. Mykhalchuk, Nataliia, Zlyvkov, Valeriy, Lukomska, Svitlana, Nabochuk, Alexander & Khrystych, Nina (2022). Psycholinguistic paradigm of the Medical staff – Patients communicative interaction in the conditions of COVID-19 in Ukraine and Scotland. *PSYCHOLINGUISTICS, 31(1),* 92–

117. https://doi.org/10.31470/2309-1797-2022-31-1-92-117. Retrieved from https://psycholing-journal.com/index.php/journal/issue/view/43

50. Onufriieva, L. & Ivashkevych, Ed. (2021). The development of learner's autonomy by the way of the formation of social intelligence. *Zbirnyk naukovykh prats «Problemy suchasnoi psykholohii» [Collection of scientific issues "Problems of modern Psychology"],51*, 9–32. https://doi.org/10.32626/2227-6246.2021-51.9-32

51. Onufriieva, L. & Ivashkevych, Ed. (2021). Contemporary approaches to the problem of the development of cognitive activity of pupils according to the ways of managing the young learner's classroom. *Збірник наукових праць "Проблеми сучасної психології", 52*, 61–83. https://doi.org/10.32626/2227-6246.2021-52.61-83

52. Pepperell, R. (2018). *Consciousness and integrated energy differences in the brain. arXiv:1804.10508*

53. Pimperton, H. & Nation, K. (2010). Suppressing irrelevant information from working memory: Evidence for domain-specific deficits in poor comprehenders. *Journal of Memory and Language, 62*(4), 380–391. https://doi.org/10.1016/j.jml.2010.02.005.

54. Phani Krishna, P., Arulmozi, S., Shiva Ram, M. & Mishra, R. Kumar (2020). Sensory Perception in Blind Bilinguals and Monolinguals. *Journal of Psycholinguist Research, 49*(4), 631–639. https://doi.org/10.1007/s10936-020-09689-5.

55. Rezaei, A. & Mousanezhad Jeddi, E. (2020). The Contributions of Attentional Control Components, Phonological Awareness, and Working Memory to Reading Ability. *Journal of Psycholinguist Research, 49*(1), 31–40. https://doi.org/10.1007/s10936-019-09669-4.

56. Shiva Ram, M., Bhardwaj, R. & Phani Krishna, P. (2017). Psychological pleasure in reading and visual cognition under colour luminance: A psycholinguistic approach). *Psychology Cognitive Science Open Journal, 3*(4), 110–115. https://doi.org/10.17140/PCSOJ-3-132.

57. Saussure, F.(1959). *Course in general linguistics*. New York, Philosophical Library.

58. Scrimali, T. (2008). *Entropy of mind and negative entropy. A cognitive and complex approach to schizophrenia and its therapy*. London : Karnac Books.

59. Shannon, C.E., & Weaver, W. (1949). *The Mathematical Theory of Communication*. Univ of Illinois Press.

60. Shannon, C.E. (1951). Prediction and entropy of printed English. *Bell Systems Technical Journal*, *30*, 50–64.

61. Shymko, V.A. (2016). Systemic localisation of the object in psychological research: structural and ontological visualization. *Bulletin of Kiev Taras Shevchenko University*, *1* (34), 47–51. [in Ukrainian]. http://miljournals.knu.ua/index.php/visnuk/article/viewFile/19/15

62. Shymko, V. (2018a). In Pursuit of the Functional Definition of a Mind: The Inevitability of the Language Ontology. *Psycholinguistics*, *23*(1), 327–346. https://doi.org/10.5281/zenodo.1211593

63. Shymko, V.A. (2018b). Object field of organizational culture: methodological conceptualization. *International Journal of Organizational Analysis*, *26*, 4.

64. Tao, Y. (2018). Boltzmann machine with self-referential entropy. Doi:10.13140/RG.2.2.33014.91203.

65. Vasilyuk, F. (1991). *The Psychology of Experiencing*. Publisher : Harvester Wheat sheaf.

66. Whittier, John Greenleaf (2021). Selected poems. Ed. by Brenda Wineapple. https://www.loa.org/books/209-selected-poems.

67. Witkin, H.A. (1994). Psychological differentiation. Studies of development. N.Y.

68. Wong, Y.K. (2021). Developmental Relations Between Listening and Reading Comprehension in Young Chinese Language Learners: A Longitudinal Study. *Journal of Psycholinguist Research, 50(2),* 261–273. https://doi.org/10.1007/s10936-018-9619-y.

Appendixes

Appendix A

Heuristic conversations that correspond to a high and a low levels of the developmental of cognitive abilities of schoolchildren of classes E1, E2. The first stage of the experiment

TEXT № 1

NEW EVIDENCE OF INTELLIGENT LIFE ON OTHER WORLDS

Two points on star charts, known only by their catalogue numbers, CTA-21 and CTA-102, may be the sites of fantastically advanced civilization. What's more, they may be trying to get in touch with us.

This idea was proposed by Nikolai S/ Kardashev, a Soviet astronomer.

Kardashev made his proposal in the highly respected journal, *Astronomichesky Zhurnal*, and he gave full credit to the ideas of the many Westerns astronomers who have done a great deal of thinking about intelligent life on other worlds during the past few years.

What's so special about these two sources, CTA-21 and CTA-102? First, the sources of the radio (microwave) emissions are optically invisible, that is, they are either too small, too dim or too far away to be seen with the best earthbound telescopes. Secondly, the waves originate from tiny "points" in the sky rather than from large expenses of gas as is typical of many radio stars.

But most important, the spectrums of the radio emissions themselves are unlike any others that have yet been found in the heavens, and they are close to what scientists consider the optimum frequency for communication between stars.

Kardashev compared the spectrums of a hypothetical artificial source that he believed would best convey messages between stars with the spectrums of emissions from CTA-21 and CTA-102, the correlation was not quite perfect, but it was much closer than from any other sources yet discovered.

Text № 1

Task: Read and discuss the text.

Heuristic conversation of the experimental class E1, which corresponds to a high level of the development of the discourse of pupils.

Pupil1: Let's talk about new evidence of intelligent life on other worlds. What do you know about it?

Pupil 2: As for me, I know that two points on star charts, known only by their numbers, CTA-21 and CTA-102. And what about you?

Pupil 3: As for me, I know that this are the sites of fantastically advanced civilization.

Pupil 4: What's more, they may be trying to get in touch with us.

Pupil 5: I know that this idea was proposed by Nicolai S/Kardashev. What do you know about it.

Pupil 6: Kardashev made his proposal in the highly respected journal, Astronomichesky Zhurnal, and he gave full credit to the ideas of the many Western astronomers who have done a great deal of thinking about intelligent life on other worlds during the past few years.

Pupil 7: Most important, the spectrums of the radio emissions themselves are unlike any others that have yet been found in the heavens, and they are close to the point of view, when scientists consider the optimum frequency for communication between stars. What information do you have about new evidence of intelligent life on other worlds?

Pupil 1: In my opinion, it was much closer than from any other sources yet discovered. In short, it's a very difficult problem.

Text № 1

Task: Read and discuss the text.

Heuristic conversation of the experimental class E2 which is corresponding to a low level of the development of the discourse of pupils.

Teacher: Do you get understand the text? And what do you know about CTA-21 and CTA-102?

Pupil 1: CTA-21 and CTA-102 – are two points on star charts.

Teacher: What proposed Nicolai S.Kardashev?

Pupil 2: Nicolai S.Kardashev is a soviet astronomer.

Pupil 3: N.Kardashev proposed, that CTA-21 and CTA-102 may be trying to get in touch with us.

Teacher: What do you say about communication between stars?

Pupil 4: The spectrums of the radio emissions themselves are unlike any others that have yet been found in the heavens, and they are close to the information that scientists consider the optimum frequency for communications between stars.

Pupil 5: I understood, that the problem was much closer than from any other sources yet discovered.

Appendix B

Heuristic conversations that correspond to the average and a low levels of the development of cognitive abilities of schoolchildren of classes E1, E2. The first stage of the experiment

TEXT № 2

VELOCITY HAS ITS LIMITS

Before the Second World War the speed of aircraft was far below the speed of sound. Today we have supersonic aircraft. Radio waves propagate at the velocity of light. Could we perhaps create “superlight” telegraphy to send signals at velocities greater than the velocity of light? No, that is an impossible thing to do.

Since the experiment disproves absolute nature of time, we conclude that signal transmission cannot be instantaneous. The velocity of transmission from one point in space to another cannot be infinite, in other words, cannot be greater than some ultimate value, called the speed limit.

This speed limit concurs with the light velocity.

Indeed, according to the principle of the relativity of motion the laws of nature will be the same for all the laboratories moving relatively to each other (rectilinearly and with the same uniform velocity). The affirmation that no velocity can be greater than the given limit is also the law of Nature and, therefore, the value of the speed limit should be exactly similar in different laboratories. The light velocity, as we know, possesses the same qualities. Thus, the speed of light is not merely the speed of propagation of a natural phenomenon. It plays the important part of being the top velocity.

The discovery of the existence in the Universe of the top velocity is one of the greatest triumphs of human genius and of the experimental capacity of mankind.

Text № 2

Task: Make up a dialogue about the text.

Heuristic conversation of the experimental class E2, which corresponds to the average level of the development of the discourse of pupils.

Pupil 1: I suppose, velocity has its limits.

Pupil 2: I agree with you. I know that before the second World War the speed of aircraft was far below the speed of sound.

Pupil 3: Today we have supersonic aircraft.

Pupil 4: Sure, radio waves propagate at the velocity of light.

Pupil 5: Could we perhaps create "superlight" telegraphy to send signals at velocities greater than the velocity at light?

Pupil 3: No, that is an impossible thing to do.

Pupil 4: Since the experiment shows absolute nature of time, we conclude that signal transmission cannot be instantaneous.

Pupil 1: The velocity of transmission from one point in space to another cannot be initiative, in other words, cannot be greater than some ultimate value, called the speed limit.

Pupil 3: I know that this speed limit concurs with the light velocity.

Pupil 5: I should like to add, that the light velocity, as we know, possessed the same qualities. Thus, the speed of light is not merely the speed of propagation of a natural phenomenon.

Pupil 1: It plays the important part of being the top velocity.

Text № 2

Task: Make up a dialogue about the text.

Heuristic conversation of the experimental class E1 which is corresponding to the low level of the development of the discourse of pupils.

Teacher: Let's speak about velocity and its limits. What do know about it?

Pupil 1: Today we have supersonic aircraft. Radio waves propagate at the velocity of light.

Pupil 2: I should like to add, the velocity of transmission from one point in space to another cannot be infinite.

Pupil 3: I agree with you, but I'd like to add that the velocity of transmission from one point in space to another cannot be greater than some ultimate value, called the speed limit.

Teacher: This speed limit concurs with the light velocity. Do you agree with me?

Pupil 4: Yes, it is. Besides, I know that the light velocity possesses the same qualities.