

ADDRESSING CHALLENGES IN COMPREHENDING SCIENTIFIC ARTICLES FOR NON-LANGUAGE UNDERGRADUATE STUDENTS

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ADDRESSING CHALLENGES IN COMPREHENDING SCIENTIFIC ARTICLES FOR NON-LANGUAGE UNDERGRADUATE STUDENTS

In the contemporary landscape of scientific advancement, understanding research literature for higher students from various fields is crucial. Nevertheless, non-language undergraduate psychology students frequently encounter specific obstacles when dealing with the literature in their professionally oriented field because of the journal articles' format, their unfamiliar structure, complex terminology, and lexical peculiarities commonly found in scientific writings. The authors investigate the most frequently met challenges, such as psychological, cognitive, and linguistic, usually faced by students for whom English is a foreign language. Among psychological problems, the authors identify a fear of approaching a research article in the English language, an anxiety about misunderstanding its gist, fear of processing the text and performing some further activities based on the content. The article suggests some methods to prevent psychological problems at the pre-reading stage and raise students' motivation to approach the passage of scientific discourse, proposing the reading strategies to upgrade the ability for comprehension. An important role in improving students' confidence is played by applying the interdisciplinary approach, a scrupulous selection of the assigned articles, learners' background knowledge, and the reading competencies that have already been acquired during the professionally oriented English lessons. The article proposes some teaching strategies for each stage of the reading lesson: pre-reading, while-reading, and post-reading. The application of these strategies increases the student's ability to overcome challenges in comprehending passages of scientific discourse and make use of the most important information in their further learning activities.

Keywords: academic reading; scientific articles; non-language undergraduate students; strategies for overcoming academic reading challenges; motivation methods.

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ОКРЕМІ ШЛЯХИ ПОДОЛАННЯ ТРУДНОЩІВ У РОЗУМІННІ НАУКОВИХ ТЕКСТІВ СТУДЕНТАМИ-БАКАЛАВРАМИ НЕФІЛОЛОГІЧНИХ СПЕЦІАЛЬНОСТЕЙ

У сучасному світі наукового прогресу спроможність студентів закладів вищої освіти читати й розуміти наукову літературу стає ключовою для їхньої подальшої інтеграції у наукове суспільство. Проте студенти першого (бакалаврського) рівня освіти, які навчаються на нефілологічних факультетах, стикаються з багатьма труднощами, коли розпочинають читання наукових статей за спеціальністю, яку здобувають. Формат наукової статті, її структурна організація, формальний стиль, наукова лексика, насиченість термінологією, математичними розрахунками, таблицями й графіками створюють для студентів психології, для яких англійська мова – іноземна, не аби які труднощі. Стаття пропонує шляхи створення мотивації для ознайомлення з дослідницькими доробками та надає методи подолання перешкод, які переважно трапляються у науковому дискурсі. Автори ознайомлюють зі стратегіями, які сприяють покращенню розуміння змісту прочитаного та оперуванню отриманими знаннями у подальшій комунікації. Пропоновані стратегії враховують особливості послідовності роботи над текстом на всіх його етапах: підготовчому, етапі безпосереднього читання з метою розуміння загального змісту та завершальному.

Ключові слова: академічне читання; наукові статті; студенти (бакалаври) нефілологічних спеціальностей; стратегії подолання труднощів академічного читання; методи мотивації.

Introduction. Since one of the objectives of every university is to prepare the next generation of explorers in a specific scientific field, understanding scholarly articles is crucial for students to become integrated into the modern scientific world. Research literature is a useful educational resource; therefore, teaching how to read and absorb information from it becomes an important issue. Non-language-experienced undergraduate students often face particular challenges when interacting with scientific papers due to unfamiliar terminology, article structure, size, investigation methods, diagrams, and charts. Thus, some additional instructions are needed to remove these obstacles and engage students in the academic reading process.

Analysis of recent research and publications. A series of general recommendations for developing academic reading skills that consider different types of readers and various reading goals have been developed by scientists and pedagogues M. Carey, K. Steiner, Jr. Petri (2020); R. Paul and L. Elder (2008), D. Willingham (2008); C. Leist, M. Woolwine & C. Bays (2012). Most of these recommendations are aimed at formation critical reading skills, as indivisible from comprehending scholarly articles (D. Willingham 2008; C. Leist, M. Woolwine & C. Bays 2012). Some authors (R. Pauland, L. Elder 2008) has researched into a theoretical connection between a critical thinking framework and reading skills, and, moreover, investigated the impact of undergraduate' critical thinking on their reading achievements [5].

The interest in academic reading is rather strong not only in the English-speaking world but also in the countries where the English language is foreign, and learners face some extra challenges common to non-language students. Thus, in 2013, there appeared a study on reading anxiety (Al-Shboul et al.) that identified the “constructs” leading to worry and misunderstanding of academic texts in a Jordanian EFL context [1, 38–56]. Based on this study Dardjito et al. (2023) investigated academic reading challenges for non-English major students in the Indonesian university [3]. In Ukraine, some problems of teaching *Academic English* have been recently studied by I. Kharchenko (2023), O. Zabolotna (2022), and Yu. Lyzanetz but the research highlights mainly the issues of academic writing, while the challenges of academic reading remain under-investigated.

This article addresses the most common difficulties that non-linguistic students encounter in processing scientific literature. Among the challenges, we identify psychological, cognitive, and linguistic ones. Besides, we differentiate between the problems that can be evaluated before approaching the reading process and those that may appear in the course of reading. We offer some strategies to increase students' motivation and enhance their comprehension.

Investigating the problem of undergraduates' grasping scientific literature, A. Gonsalez Moralesand, M. Conde Rivera (2022) highlight the necessity of applying an interdisciplinary approach that addresses the students' specialism, because general communica-

tion practice cannot resolve its issues [4, 132]. Speaking about critical thinking based on the previously read scientific passages, Daniel T. Willingham (2008) admits that these skills are not transferable; they work only within the familiar domain of knowledge and practice, and, besides, only background awareness makes the process of reading scientific texts meaningful and fruitful [7, 26]. From this perspective, we regard that academic reading lessons should be based on the texts the content of which refers to the specialism-specific sphere. Under this condition, students are able to make sense of the context, and it removes one of the problems that appear at the pre-reading stage, and, mainly, some kind of agitation and anxiety caused by approaching a text of unfamiliar register. Besides, such a choice integrates academic reading classes into the major disciplines and enriches their subject-specific awareness.

Students' background awareness is preconditioned not only by the subject-specific disciplines, but also by *ESP* (English for specific purposes) program according to which non-language undergraduates study the professionally-oriented English during the whole Bachelor's course. Within the ESP program the students are introduced to the *EAP* module (English for academic purposes). Its Syllabus presupposes the formation of reading, writing, and speaking academic skills. As reading is considered to be a source of information and a starting point for written and spoken communication, we start the module with introducing students to scientific texts the content of which is based on specialty-specific information. Regarding the previous specialism-oriented English classes, the third-year students are able, to some extent, to tackle with scientific content, but, nevertheless, some challenges arise. We differentiate between those which appear at the pre-reading and while-reading stages.

Some difficulties can be evaluated before approaching the reading passage. Psychological problems rather often arise before starting to read and suppress the learner's motivation. The most urgent of these problems is a fear of misunderstanding scholarly articles because of the foreign language. Besides, the length, unfamiliar format, unknown structure, an abundance of diagrams, charts, tables, and mathematical calculations add to this issue. Other obstacles appear may appear during the while-reading stage. Processing scientific passages is always done for some further learning purposes, so under the ability to comprehend stands the ability to process the text critically, which can be blocked by cognitive reasons because the students might be unaware of the issue raised in the article. Linguistic difficulties emerge due to the peculiarities of academic style, such as formal language, arduous vocabulary, complicated terminology, extended paragraphs, and long sentences. The challenges above aggravate the process of comprehending the

content and interfere with the ability to treat the passage of scientific discourse critically.

The answer to the above-mentioned problems is predetermined by the Educational program of the given specialism and the Syllabus of the discipline, but much depends upon the methods of teaching and organization of the practical classes. Considering the approaches to the solution of the identified psychological problems, we regard several factors: interdisciplinary effect, students' background knowledge, and the scrupulous choice of scientific articles. The positive impact of the interdisciplinary effect becomes obvious in the third year of university studies, as the students by this time have acquired knowledge of many specialized disciplines, which relieves the pressure of academic discourse. Besides, the learners have encountered scientific passages in various disciplines, and, though, they are in the native language, the students have acquired the bulk of terminology in the field, most of which is of international origin.

A significant role in overcoming reading psychological challenges plays the previous 210 hours of professionally-oriented language learning introduced since the beginning of the university course. The Syllabus of the discipline "A Foreign Language – English" is specified by the key provisions of the *Concept of Studying Foreign Languages* in Taras Shevchenko National University of Kyiv based on the topics that help the learners delve into the history of psychology, different schools of psychological thought, the contribution of famous scientists to the field and the main branches of psychology. So during the first years of studies, the students perceive lexical items that lay the foundation for forming academic vocabulary skills. Thus, in their third year, the learners can understand and actively use in English some basic terminology of the subject.

A scrupulous choice of articles helps students overcome another aspect of the psychological issue. Under this choice, we mean the approach when several features of a scientific article are observed. Firstly, it is a familiar topic. And here the role of interdisciplinary factors is significant. The acquaintance with the syllabuses of specialized disciplines helps choose an article within the students' competence. If the students have encountered these scientific matters in their specialized subjects or discussed the question in some earlier English lessons, the reading process becomes much more motivated. Moreover, the students seem rather interested in getting more knowledge on the familiar subject and approach the text without any agitation.

A careful choice of the article assists in overcoming the second mentioned problem – a cognitive one. The abundance of mathematical calculations creates difficulties for some students, especially if they did not specialize in mathematics at school. Not all the articles

in psychology contain such calculations, and we can choose out of them. On the other hand, when the passage is to the purpose of the topic, the learners may skip some paragraphs which do not hinder the comprehension of the article as a whole. Another important thing that facilitates comprehension, making the process of reading more conscious and fruitful, is to raise the student's awareness of the typical format of a scholarly article (introduction, methodology, methods, results, discussion, and conclusion), as well as the structural organization of each part and the composition of the paragraphs.

The strategies mentioned above serve to remove some of the linguistic difficulties. Group discussions, implemented at the pre-reading stage, activate the background knowledge on the topic, vocabulary and terminology, and predict the main content of the text. The analyses of the title and keywords contribute to better motivation and further comprehension of the article, removing most of the linguistic load before the reading stage.

A while reading stage is a long-lasting process, as it takes several classes and supposes some hours of self-study. The productivity of the process increases when we read the abstract to the article and discuss it in class, supplying students with all the necessary explanations on the part of its function, terminology, and structure. In any case, we consider to be more reasonable to assign students not more than one or two parts of the article. Special attention should be paid to the introduction, where students identify the topic and objectives. A scrupulous consideration should get the concluding part of the article. Tracing the correlation of the tasks set in the introduction with the results reported in the conclusions contributes to the comprehension of the logic of a scientific article and its structural organization.

The time required to read each structural part of the article depends upon its length, cognitive load, and assigned tasks, with each of them followed by the post-reading activities. Along with the whole group activities, we employ small-group discussions and pair work that foster an environment of collaboration and support. Various types of interaction and sufficient communicative practice ensure the students' awareness of the gist, and result in the writing task–literature review essay—which summarizes the outcomes of both classroom and self-study activities.

Conclusion. Comprehending scientific literature is a crucial skill that holds the potential to unlock academic and professional opportunities for non-language undergraduate students. When dealing with the passages of scientific discourse, the students face challenges of different natures – psychological, cognitive, and lexical. By recognizing and addressing them, the teachers can implement targeted strategies that promote engagement and understanding. Building the academic reading classes on the interdisciplinary approach, applying the background knowledge attained during the previous professionally-oriented English lessons, predicting the difficulties students could face in the reading process, and removing them partially beforehand—these are the strategies we use to equip the undergraduates with the necessary tools to navigate the complexities of scientific literature.

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“Секрет майстерності в тому, що секрету немає, є просто-напросто талант”.

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