

# Teaching Latin in Medical Schools: Methods, Traditions, Innovations

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**Abstract** – This article presents the curriculum of Latin language courses and discusses their variations. We describe and analyze general characteristics and specificities of textbooks published in the discipline within the last five years, as well as their methodological recommendations. We systematically lay out traditional and innovative methods and pedagogical techniques of the discipline, including types of assessment, available applications, and resources for the cultural component of the course. Digital learning formats that are potentially effective for mastering Greco-Latin medical vocabulary are described in detail. The ultimate goal of all these methods is to train highly qualified professionals who are able to continuously grow in their discipline, not only being in command of medical terminology, but also understanding the principles of how medical terms are generated. Our approach involves the descriptive method, systematic categorization of scientific and methodological literature, and comparative analysis.

**Keywords** – *Greco-Latin medical terminology, innovative teaching methods*

## I. INTRODUCTION

Changes in the social and informational fabric of society are driving new demands in education. There is an impulse towards creating a unified educational space and towards developing new technologies. Scholars around the world are discussing new uses of information and communication technologies in higher education, representing several methods and approaches. In Russian language journals, these include blended learning and e-learning approaches to foreign language pedagogy [1]; the integration of webinars and other forms of distance learning [2]; and techniques of individualization in subject-oriented learning [3]. Among publications in English, there are trends towards the following methods and pedagogical technologies: individualized curriculum for personal and professional development, with a pedagogical portfolio [4]; adaptive e-learning; communication technologies such as websites, Voxer, computer-based cases, video presentations, etc. [5–7]. The increasing speed and variety of ways to send and receive information is spurring the development of new educational technologies.

As the conditions outside of language change, consciousness and perception of language change with them. The impact of mass media, information overload, the influx of computers into daily life, the constant use of gadgets, the hypertext formatting of information and fragment-based mode

of perception that goes along with it – all these have led to the need for new Federal Education Standards that reflect changes in the demands placed upon contemporary professionals. The ultimate goal of contemporary education is to train competent specialists who are capable of self-development and self-education. They must have strong communication and analytical skills and be ready to meet the challenges that face professionals at the cutting edge of modern medicine. The implementation of the competency approach in professional education and its reflection in new teaching methods has led to a demand for Latin courses to go beyond the traditional techniques like the micro-lecture and the explanation of topics with the aid of didactic and visual material. New and varied activities and methods for student assessment have proliferated. The need to master a certain set of competencies demands more effective approaches to both presenting material and to testing knowledge and skills.

## II. MATERIALS AND METHODS

The materials we used for our analysis were both the methodological sections and the content of various textbooks of Latin language. We also reviewed the journal literature in which instructors of Latin give their findings based on classroom experience. Our method was one of comparative analysis, and we looked to survey the current state and trends in the discipline as well as offer some forward-looking conclusions.

## III. RESULTS AND DISCUSSION

The nature of the Latin curriculum is defined by the properties of the subject itself. Tradition holds that Latin is a “dead” language, but modern languages take advantage of its morphological and lexical potential, with many derivational models being put to use for the formation of new terminology. To describe this, L.G. Panin has offered the term “preservational language,” the rules of which are defined by a closed corpus of writings, or “sacred texts” [8]. As a language with a specific purpose, medical Latin does not live as a conversational language, but rather as the source for anatomic, histological, and pharmaceutical nomenclature, and serves as the basis for new medical terms. However, the discipline as a whole is not limited to just the study of Latin, since clinical terms, for example, are derived largely from elements of Classical Greek. Given their active role and ontological significance in medical terminology, Latin and Classical Greek are more aptly described as preservational languages than dead

ones. In current practice, the name usually given to courses is “Latin language,” but there is good reason to think this should be changed. The goal of these courses in medical schools, after all, is not to acquaint students with the whole language of Latin and its cultural and historical heritage, but rather to teach them the foundations of medical terminogenesis. The students do not just study vocabulary, affixes, and elements of Latin grammar, but also a large number of morphemes and lexical units from Classical Greek, especially in clinical and pharmaceutical terminology.

There are many methods of language teaching that do not apply to the Latin language discipline, since its goals and challenges are vastly different from those of the study of contemporary languages. At each level of language study – phonetics, morphology, vocabulary, syntax– medical Latin courses select only material that is relevant to the scientific and medical terminology necessary for written and oral communication by students and professionals. A classic example of a move away from linguistic categories is the suggestion in M.N. Cherniavsky’s textbook to separate pairs of letters into diphthongs and digraphs. Other teachers of Latin give different recommendations, such as avoiding covering the full scope of third-declension noun types, and instead limiting the discussion to consonant and mixed forms; giving the word *rete* as an exception; presenting the formation of adjectival endings of the second group separately; and teaching only part of the set of irregular adjectives, etc. [9].

The study of medical terminology is part of the curricula of all Russian and most European medical schools. Despite the fact that Russia is one of the few places to offer Latin language as a separate subject, medical terminology is included in nearly all courses of study in medical schools around the world [10]. The courses are variously named and the number of credit hours differ, but learning the ordering, generation, and function of medical terms is included in German, Austrian, British, Czech, Polish, Finnish, Bulgarian, and U.S. systems, as well as others [11–14].

Traditional methods of teaching medical Latin divide the material into terminological groupings, and present the material in modules: anatomical, pharmacological, and clinical. The optimal succession is said to begin with the anatomical module, since it corresponds best with learning the basics of grammar and laying the foundation for a systematic approach to the language. This also allows schools to synchronize the Latin course with the introduction to anatomy, which allows for optimal results in both courses. The ordering of the pharmaceutical and clinical modules varies depending on different approaches to structuring the grammatical progression. Starting with the first phonetic category, each selection of material is chosen based on its relevance to the language of the profession. For example, unlike students in the humanities, future MDs study long and short forms of the most common suffixes, rather than just learning the accent placement rules. Teaching Latin in medical schools is largely done through the translation method (grammar-translation and the lexical method), which is supplemented by the comparative method (drawing analogies with Russian, English, and other European languages).

We analyzed three recent medical school textbooks of Latin:

1. T.L. Bukharina, V.F. Novodranova, T.V. Mikhina; *Latin Language* [15]
2. S.A. Lin, *Latin Language / Lingua Latina* [16]
3. Iu. F. Panasenko, *Latin Language* [17]

All three textbooks follow the classic division into three sections, based around anatomical-histological, clinical, and pharmaceutical nomenclatures. Each textbook contains a system of exercises with contemporary content; some of them come with answer keys. Each has additional material on Latin aphorisms and professional expressions, as well as the text of *Gaudeamus*, the student hymn. All of the textbooks contain classic exercises of the discipline: determining the stems and declensions of nouns and adjectives; agreement exercises; direct and reverse translation of multi-word terms; analysis and construction of clinical terms; adding the missing morpheme; translation of prescriptions, including abbreviations.

The Bukharina, Novodranova, and Mikhina textbook [15] is divided into three parts: terminology of morphological disciplines; terminology of pathological anatomy and clinical disciplines; and pharmaceutical terminology with nomenclature of medicinal agents. Their textbook is characterized by a highly defined structuring of the student’s non-classroom work. It contains the following additional sections: (1) logical and didactic tables as a supplement to the section on pharmaceutical terms, and (2) “Latin language in questions and answers,” in which elements of grammar and word-formation are presented. The textbook also features appendices for introductory vocabulary, recommendations for lesson preparation, a plan for the progression of topics, examples of quizzes and tests, exam topics, a sample grading rubric, and classroom material. In addition, there are paper topics and a guide for conducting contests in drawing, Latin speech, translating the student hymn, and designing a conference logo. There is also an idea and examples for a fun quiz activity as well as a guide for organizing a student conference. Work outside of the classroom is systematized, with a sourcebook and schedule for homework assignments. The authors offer a plan for the logical structure and progression of topics, along with approaches and materials for instruction and a student survey. In this way, the system combines textbook material with a teaching manual and a student guide for classroom study, homework, and research.

In S. A. Lin’s textbook, *Latin Language* [16], each section is prefaced with introductory material and a glossary of terms. Lessons are divided into paragraphs containing micro-units. The sections are supplemented with materials for independent exam preparation, including sample questions and exercises with answer keys. In the “Clinical terminology” section, new roots and affixes are presented in a thematic progression along with the lesson topics, while the exercises are based around compound both words and multi-word terms. We agree with this approach, and see limiting the required vocabulary only to one-word terms as a methodological error. We also support the inclusion of Latin aphorisms in the exercises, along with the recommendation to memorize them.

Iu. F. Panasenko’s *Latin Language* [17] features a methodological document for the instructor called “Answers to

common instructor questions.” The author offers his own metalanguage terminology, including “monomial, binomial, and polynomial terms;” “stress placement diagnostics;” and others. Prefixation and suffixation are given successively across several lessons, which differs from most textbooks. Appendices include: exceptions in grammar rules and descriptions of adjectives that deviate from the grammatical norm; representations of dosage in IUs; numeral adjectives.

For Russian speaking students, A.V. Zhurbina [2] has developed a Latin language course in the form of a series of webinars. Her work demonstrates the need to rethink and adapt the structure of courses in our own discipline. We have found no evidence in the literature that a course of this type has yet been developed for Latin language programs at medical schools. We can assume, however, that adding a combination of varied applied tasks and webinars would increase the overall level of student achievement in our field.

We note a tendency among contemporary textbooks to reduce the number of assignments based on direct and reverse translation as well as constructions of terms. On the other hand, the number of test-like assignments, such as filling in a missing morpheme or choosing the answer from a list of paronyms, antonyms, synonyms, etc., has increased. Given the dynamic way in which the system of medical terminology evolves, we suggest that textbook authors should add a section on the history and tendencies of the development of clinical terms. This will help future professionals to understand the ongoing processes of medical terminogenesis [18].

Our society advances when people with the ability and desire to continuously develop themselves make informed decisions in their field. To educate engaged citizens capable of becoming fully-fledged professionals and able to state and hold their position, subject-oriented education must play a leading role. Active forms of education, combined with classical techniques of teaching and testing, make the student a full participant in the educational process rather than a passive object of education who simply receives wisdom. To achieve these goals, we offer the following classroom strategies:

1. *Roundtable.* This type of instructor-led classroom work can be used for discussion of challenging topics, such as: the usage of common word parts in one-word terms in pharmaceutical nomenclature (their conservation of Greek orthography, consistency of meaning, etc.); the definition of roots and affixes in clinical terminology (semantic variance, rules and exceptions, comparative analysis of terms in ICD-10 and ICD-9); Latin in the world (finding Latin morphemes in contemporary language, use of Latin idioms and abbreviations in journalism, science writing, and literature).
2. *The Project method* (on either an assigned topic or a freely chosen one). The process of choosing a topic can reveal a new and interesting perspective, a fresh way of looking at a problem, or an unorthodox way of formulating a question. The form in which the project is presented is open-ended and can be chosen by the student (presentation, video, poster, booklet, crossword, game, computer game, etc.)

3. *Case study.* This method is effective for working with recommended use instructions for medicines, making it possible to analyze vocabulary with Latin or Greek origins, and allowing for repetition of common fragments of chemical nomenclature and explanation of clinical terms. It can be used for training students to correctly fill out the Latin portion of a prescription.
4. *Discussion.* This classroom activity requires significant preparation both on the part of the instructor and on the part of the students, including choosing a topic, dividing into groups, preparing arguments, highlighting various aspects of the problem at hand, etc.
5. *Conducting research* and presenting the results in a conference presentation. Many higher ed institutions conduct conference events annually, such as Novosibirsk State Medical University’s competition-conference “Avicenna.”
6. *Academic competitions.* There are various types of competitions in the Latin language subject: theater competitions with scenes acted out in Latin [19]; competitions in ancient culture and history; cross-subject competitions, for example a crossover between Latin and anatomical terminology in the history of anatomy; internet competitions such as Ulianovsk State University’s international internet-olympiad.

Non-traditional forms of learning can be effective in activating students’ creative potential and encouraging their drives for self-actualization and self-development. Many of these, including electronic forms, are used in lessons of applied Latin. Of course, electronic education can hardly be considered an innovation at this point. Every university has a site with information resources and educational content. For example, Ural State Medical University has developed interactive content available through mobile apps as well as on the web [20, 21]. Online learning expands the resources available to instructors but cannot replace the live engagement between instructor and student that happens in the classroom. Its main advantages are expanding the variety of independent work, doing creative assignments, drilling vocabulary, and self-assessment.

A variety of assignment types may be used in the context of a Latin language course.

1. *Webquest.* This technology requires significant prep work on the part of the instructor: formulating the problem, compiling a data bank, preparing sources of information, describing the stages of the assignment, analyzing the results of the “journalistic investigation,” and reaching a compromise. Web quests can be used for studying botanical nomenclature, looking at terms of Latin and Greek origin in biology, etc.
2. *Moodle.* This platform has wide-ranging capabilities and many use cases: posting text documents, photos and videos, practice assignments, tests and quizzes, etc.

3. *Mobile apps*, such as *Quizlet*, *Kahoot*, etc. They allow instructors and students to create modules for topics for vocab study as well as other subjects. A vocab topic can be used either to present new material or to test knowledge. The Kahoot! app works well for instant quizzes. Results can be visualized, and the rating system adds a competitive element which incentivizes learning.

In the current era of *smart education*, we are seeing a new philosophy of teaching develop under the influence of a new openness of educational resources. However, this requires greater consolidation among the educational community and an ability to combine passive, active, and interactive components [1]. In the current literature, the idea of “hybrid” methods points to the most effective forms of teaching and testing. This is also shown to be true in practice [22, 23].

#### IV. CONCLUSION

Following from these developments, we see that contemporary instructors have at their disposal a significant arsenal of various methods and strategies for teaching languages. The wealth of means for presentation and testing makes it possible to implement a subject-oriented approach to education. Teaching Latin and the foundations of medical terminology has some unique qualities. As a preservational language, Latin is not amenable to all methods available to teachers of contemporary languages. As we noted, the usual titles for the courses in our discipline does not accurately reflect their actual content. Each of the textbooks we studied are in line with the demands of contemporary methodology, offering varied forms of activities both in and out of the classroom. They provide ample opportunity for creativity and initiative, for independent work as well as group work, and support the development of systemic thought. The development of information technologies and the establishment of *smart education* opens new perspectives for innovative approaches and the “hybridization” of the learning process, and paves the way for individualized teaching methods.

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