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LINGUODIDACTIC FOUNDATIONS OF INTEGRATIVE TEACHING OF UZBEK AND LATIN TERMINOLOGY IN MEDICAL EDUCATION

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Abstract.

This article examines the linguodidactic foundations of integrative teaching of Uzbek and Latin medical terminology in the process of medical education. In contemporary medical education, the development of professional competence among future healthcare specialists requires not only the acquisition of professional knowledge but also the ability to understand medical terms accurately, analyse their morphological and semantic structures, compare Latin terms with their Uzbek equivalents, and use them appropriately in professional communication.

The study analyses the potential of integrative, competence-based, communicative, contrastive, contextual, and terminological approaches. Based on the structural characteristics of the Uzbek and Latin languages, the derivational models of medical terms, and their interdisciplinary relationships with professional subjects, an integrative teaching model is proposed.

The findings demonstrate that teaching medical terminology through the interconnected study of its form, meaning, morphemic structure, etymology, and professional context is more effective for developing students' terminological competence than mechanical memorisation. The article identifies the stages of developing medical terminological competence and proposes relevant didactic principles, a system of integrative exercises, and assessment criteria for students' knowledge and skills.

Keywords: medical education, linguodidactics, Uzbek language, Latin language, medical terminology, integrative teaching, terminological competence, anatomical nomenclature, clinical terminology, competence-based approach.

Introduction

One of the main objectives of modern medical education is to develop in future specialists not only professional knowledge and practical skills but also clear, consistent, and terminologically accurate professional communication competence. Specialised terminology constitutes an essential component of communication in the medical field. The ability of physicians, pharmacists, nurses, and other healthcare professionals to use anatomical, clinical, pharmaceutical, and diagnostic terms correctly is an important prerequisite for the accurate transmission of professional information.

Latin has played a particularly significant role in the historical and contemporary development of medical terminology. Although Latin is no longer used as a language of everyday communication, it remains an important linguistic foundation for the formation of anatomical nomenclature, pharmaceutical terminology, clinical terms, and numerous

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scientific and medical names. Contemporary studies also emphasise the role of Latin in ensuring precision, standardisation, and international communication in medical terminology.

This issue is particularly relevant within the system of higher medical education in Uzbekistan. Students simultaneously work with several terminological layers: Latin nomenclature, Uzbek medical terminology, Russian terminological traditions, and English terminology widely used in international scientific communication. Such a multilingual terminological environment enriches students' professional vocabulary; however, it also creates a number of linguodidactic challenges related to distinguishing the form and meaning of terms, translating them correctly, and using them appropriately in professional contexts.

In particular, phonetic, orthographic, semantic, and methodological difficulties have been observed in the teaching of medical terminology. Students sometimes establish a mechanical connection between a Latin term and its Uzbek equivalent without sufficiently understanding the morphemic structure, word-formation model, or semantic components of the term. As a result, their ability to independently analyse new terms and infer the meaning of unfamiliar terminology remains underdeveloped.

From this perspective, it is important to teach Latin and Uzbek terminology not separately, but as interconnected linguistic systems. An integrative approach considers a term not merely as a unit to be memorised, but as a linguistic unit possessing a particular semantic, morphological, and professional context.

The integration of medical terminology with anatomy-related disciplines has also been shown in contemporary research to contribute to the development of students' scientific and terminological literacy as well as their professional thinking. At the same time, connecting Latin with contemporary medical contexts, using morphological analysis, semantic grouping, and interdisciplinary links can serve as effective means of developing terminological competence.

Research Objective

The main objective of this study is to identify the linguodidactic foundations of integrative teaching of Uzbek and Latin terminology in medical education, develop an effective methodological model, and substantiate the didactic conditions necessary for developing students' medical terminological competence.

Research Objectives

Based on this aim, the following objectives were established:

1. To identify the linguistic and didactic characteristics of medical terminology;
2. To analyse the structural and semantic relationships between Uzbek and Latin medical terminology;
3. To determine the linguodidactic principles of integrative teaching;
4. To identify the structural components of medical terminological competence;
5. To develop a model for integrative teaching of Uzbek and Latin terminology;
6. To demonstrate the possibilities of applying integrative methods in a system of practical exercises;
7. To propose assessment criteria for students' terminological knowledge.

Research Object

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The object of the research is the process of teaching Uzbek and Latin medical terminology in higher medical education institutions.

Research Subject

The subject of the research comprises the linguistic, pedagogical, and methodological means of integrative teaching of Uzbek and Latin terminology.

Research Hypothesis

It is hypothesised that if Uzbek and Latin medical terminology is taught integratively through the interrelationship of form, meaning, etymology, morphemic structure, and professional context, students' ability to understand, analyse, translate, and apply terminology in new professional situations will develop significantly more effectively than through mechanical memorisation.

Materials and methods

The methodological foundation of the study consists of linguodidactic, competence-based, integrative, communicative, contrastive, and contextual approaches.

The linguodidactic approach requires linguistic units to be studied in close connection with the mechanisms through which they are acquired in the educational process. With regard to medical terminology, this approach makes it possible to consider not only the linguistic nature of a term but also how it is perceived, remembered, and transferred into professional practice by students.

The following research methods were employed:

- **Theoretical analysis** – examination of scientific and methodological literature related to medical terminology and its teaching;
- **Comparative-contrastive analysis** – comparison of the structural and semantic characteristics of Uzbek and Latin terms;
- **Linguistic analysis** – identification of the morphemic, derivational, and semantic structures of terms;
- **Contextual analysis** – examination of the use of terms in professional texts and communicative situations;
- **Pedagogical observation** – identification of typical difficulties encountered by students when learning medical terminology;
- **Modelling** – development of the structural components of an integrative teaching model;
- **Systemic approach** – consideration of terminological competence as a system of knowledge, skills, and abilities.

Anatomical, clinical, and pharmaceutical terms were used as research materials. Examples include:

Latin term	Uzbek meaning	Linguodidactic unit
cor	heart	organ name
pulmo	lung	anatomical term
ren	kidney	anatomical term
hepar	liver	anatomical term

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Latin term	Uzbek meaning	Linguodidactic unit
gastritis	gastritis, inflammation of the stomach	clinical term
dermatitis	dermatitis, inflammation of the skin	clinical term
nephritis	nephritis, inflammation of the kidney	clinical term
cardiologia	cardiology	name of a medical discipline
neurologia	neurology	name of a medical discipline
therapia	therapy	treatment-related term

When teaching these units, emphasis is placed not only on their translation but also on their morphemic structure and word-formation patterns. For example, when teaching the term *gastritis*, the component *gastr-* is explained as referring to the stomach, while the suffix *-itis* indicates an inflammatory process. Such an approach expands students' ability to independently analyse other medical terms.

Results

The research findings indicate that, for the effective acquisition of medical terminology, Uzbek and Latin should not be regarded as completely independent systems but rather as interconnected components contributing to the formation of students' professional knowledge.

Latin terminology primarily functions as an important component of international nomenclature and scientific medical language. Uzbek, in turn, serves as the principal means of expressing medical knowledge in national education, clinical communication, and communication with patients.

Therefore, students need to understand the following terminological sequence:

Latin term → morphemic structure → semantic meaning → Uzbek equivalent → professional context.

For example:

nephritis → nephr- + -itis → kidney + inflammation → nephritis → inflammatory disease of the kidney.

Such a sequential teaching method is based on understanding the internal structure of a term rather than merely memorising it. Based on the research, students' medical terminological competence can be considered to consist of five major components:

1. **Phonetic-graphic component**
   Students should be able to read, write, and pronounce Latin terms correctly.
2. **Morphological component**
   Students develop the ability to identify the functions of prefixes, suffixes, roots, and other morphemes within a term.
3. **Semantic component**

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Students should understand both the lexical meaning of a term and its medical content.

4. **Terminological component**

Students develop the ability to identify the systematic relationships of one term with other terms, including synonymic and derivational relationships.

5. **Communicative-professional component**

Students should be able to use acquired terminology correctly in clinical, academic, and scientific communication.

Thus, terminological competence is not limited to simply "knowing a term." It represents a complex competence encompassing the stages of **recognising, understanding, analysing, translating, and applying** a term.

The integrative teaching of Uzbek and Latin terminology should be based on the following principles.

Principle of professional orientation.

Latin and terminology should not be taught as theoretical material isolated from professional disciplines but as essential tools for the future medical professional.

Principle of systematicity.

Terms should not be learned as random lists but should be organised into anatomical, clinical, pharmaceutical, and other semantic groups.

Principle of integration.

Latin language classes should be connected with anatomy, physiology, pathology, pharmacology, and clinical disciplines.

Principle of contrastivity.

The grammatical and terminological characteristics of Uzbek and Latin should be analysed comparatively. This approach helps prevent linguistic interference.

Principle of contextuality.

A term should not be taught as an isolated word but within a medical text, case history, prescription, clinical situation, or scientific article.

Principle of learner activity.

Students should participate as active subjects who search for, analyse, and apply terminology in practical situations rather than as passive recipients of ready-made information.

INTEGRATIVE TEACHING MODEL

Based on the research findings, the following model of integrative teaching of Uzbek and Latin terminology is proposed:

1. Introduction of the term;
2. Identification of its Uzbek meaning;
3. Analysis of its Latin morphemic structure;
4. Identification of the word-formation model;
5. Comparison of the Uzbek and Latin units;
6. Application in a professional context;
7. Independent creation or analysis of a term;
8. Diagnostic assessment.

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The main advantage of this model is that students do not simply receive terms in their ready-made form. They understand their internal structure and, on this basis, acquire the ability to independently determine the meanings of new terms.

Discussion

In traditional medical terminology classes, priority is often given to memorising lists of terms, translating them, and mastering their grammatical forms. Although such methods are necessary for developing basic knowledge, their possibilities are limited. When students memorise terms mechanically, they may experience difficulties in independently determining the meaning of unfamiliar terms.

Modern linguodidactic approaches, however, require terminological knowledge to be connected with functional competence. Recent studies also emphasise the effectiveness of learning Latin terminology through morphological analysis, semantic grouping, contextual teaching, and interdisciplinary connections.

Another important aspect of the integrative model in the Uzbek medical education context is the effective use of the mother tongue. When students connect a Latin term with its Uzbek meaning, they integrate new information with their existing linguistic experience. This helps reduce cognitive load and facilitates the retention of terminology in long-term memory.

Furthermore, comparing Uzbek and Latin terminology develops students' metalinguistic competence. Students begin to understand structural differences between the two languages. For example, grammatical meaning in Latin is frequently expressed through inflection, whereas Uzbek predominantly expresses grammatical relationships through agglutinative suffixes. Understanding this difference can facilitate the acquisition of grammatical forms of Latin terms.

Morphemic Analysis of Medical Terms

One of the most effective areas of integrative teaching is morphemic analysis. Morphemes of Greek and Latin origin are highly productive in medical terminology.

For example:

- *cardi-* – heart;
- *nephr-/ren-* – kidney;
- *hepat-* – liver;
- *gastr-* – stomach;
- *dermat-* – skin;
- *neur-* – nerve;
- *oste-* – bone;
- *-itis* – inflammation;
- *-logia* – science, study;
- *-ectomia* – surgical removal;
- *-scopia* – visual examination;
- *-algia* – pain.

After mastering these components, students can identify the common semantic pattern of terms such as *carditis*, *gastritis*, *dermatitis*, and *nephritis*.

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The methodological value of this approach lies in the fact that the teacher does not require students to memorise each new term separately. Instead, students learn a terminological model that generates a number of related terms.

6. SYSTEM OF INTEGRATIVE EXERCISES

According to the research findings, integrative exercises can be divided into four groups.

First Group – Reproductive Exercises

Students recognise a term and provide its Uzbek meaning.

Examples:

- *cor* – heart;
- *ren* – kidney;
- *pulmo* – lung;
- *hepar* – liver.

Second Group – Analytical Exercises

Students identify the morphemic structure of a term.

Example:

gastritis = gastr + itis

Here:

- *gastr-* – stomach;
- *-itis* – inflammation.

Third Group – Comparative Exercises

Students compare Latin and Uzbek terminology.

For example:

cardiologia – kardiologiya – the medical discipline concerned with the heart and cardiovascular system.

Students identify which component of the term has been retained in an adapted form in Uzbek.

Fourth Group – Communicative-Professional Exercises

Students use terminology in a clinical situation.

Example:

Explain the diagnosis associated with an inflammatory process affecting the kidney using the Latin-based term.

The student should demonstrate the relationship:

nephritis – nephritis – inflammation of the kidney.

Such exercises connect terminological knowledge with practical professional activity.

The following criteria are proposed for assessing students' integrative terminological competence:

Criterion	High level	Intermediate level	Low level
Recognition of terms	Identifies terms quickly and accurately	Some errors are present	Cannot distinguish many terms
Morphemic	Independently	Performs	Unable to

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Criterion	High level	Intermediate level	Low level
analysis	analyses the structure of terms	partial analysis	analyse the structure
Translation	Provides accurate and meaningful translations	Some inaccuracies occur	Performs mechanical translation
Semantic understanding	Explains the meaning of terms	Provides partial explanations	Gives only the lexical meaning
Professional application	Uses terms correctly in clinical situations	Uses terms with teacher assistance	Experiences difficulties in application
Independent analysis	Can infer the meaning of new terms	Can partially determine meanings	Cannot determine meanings independently

These criteria make it possible to assess not only students' reproductive knowledge but also their functional terminological competence.

The pedagogical effectiveness of the integrative approach is determined by several factors.

First, because terms are studied within an interdisciplinary context, students' knowledge becomes systematic rather than fragmented.

Second, identifying relationships between Uzbek and Latin terms contributes to the development of students' linguistic thinking.

Third, morphemic analysis reduces the need for mechanical memorisation. Once students master particular morphemes, they begin to recognise their functions in other terms as well.

Fourth, clinical-situation-based tasks connect terminological knowledge with real professional communication.

Fifth, the integrative approach preserves the historical position of Latin in medicine while strengthening its functional significance in contemporary professional education. The role of Latin in modern medical terminology and its educational value are also emphasised in recent studies.

Conclusion

The findings of the study demonstrate that integrative teaching of Uzbek and Latin terminology in medical education is an effective means of developing the terminological and communicative competence of future medical professionals.

Within the integrative educational process, Latin should not be regarded merely as a set of grammatical rules but as a means of understanding the structural and semantic mechanisms underlying medical terminology. Uzbek, in turn, performs the function of facilitating the understanding of these terms, applying them in national professional communication, and connecting them with students' existing linguistic experience.

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The study leads to the following conclusions:

1. Effective teaching of medical terminology requires the integration of the form and meaning of terms.
2. Comparative study of Latin terminology with Uzbek contributes to the development of students' terminological and metalinguistic competence.
3. Morphemic and etymological analysis provides a higher level of meaningful acquisition of medical terminology compared with mechanical memorisation.
4. Integrating terminology with anatomy, physiology, pathology, pharmacology, and clinical disciplines increases its professional relevance.
5. Contextual and communicative tasks facilitate the transfer of terminological knowledge into practical professional activities.
6. Terminological competence should be regarded as a combination of the abilities to recognise, understand, analyse morphologically, translate, and apply terms in professional situations.
7. The proposed model of integrative teaching of Uzbek and Latin terminology corresponds to the competence-based orientation of contemporary medical education.
8. Combining this approach with electronic dictionaries, terminological corpora, interactive exercises, and digital educational resources may further increase its effectiveness in the future.

Thus, integrative teaching of Uzbek and Latin terminology can be regarded as a linguodidactic mechanism that establishes a natural connection between language and professional disciplines in higher medical education. Its principal outcome is not simply the memorisation of terminology but students' ability to understand and independently apply terms based on their internal structure, semantics, and professional function.

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