# FORMING OF TERMINOLOGICAL COMPETENCE AMONG THE FUTURE SPECIALISTS OF WOODWORKING INDUSTRY

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Abstract: This article considers the problem of formation of terminological competence in future specialists of the woodworking industry, because the free possession of terminology is the key to successful professional activity of the individual. How to teach students to communicate well in a professional environment? How to systematize their terminological knowledge? How to make students speech correct in terms of language culture in general? Given the current issues in the training of highly qualified specialists, the development of terminological competence plays an important role. The formation of a system of special knowledge, cognitive skills and practical skills that related to branch terminology in Ukrainian universities occurs mainly during the study of courses "Ukrainian language (for specific purposes)", "Professional terminology", "Culture of Ukrainian scientific language". The article provides a scientific and theoretical foundation of the author's methodology for the formation of Ukrainian-language terminological competence of future specialists in the woodworking terms is created: elaboration of definitions of "term", "terminology", formation of the woodworking terms corpus, study of taxonomy of nominations in the language of special purpose, mastering the semantic stratification of terms, formal-structural typology of terms. The article also proposes the optimal methodological vocabulary of students in order to form their terminological competence.

Keywords: Formal and structural typology of terminology, Semantic stratification of terms, Specialists of woodworking industry, Taxonomy of nominations, Terminological competence, Woodworking terminology.

# 1 Introduction

The key task of higher education is to train highly qualified specialists who are competitive in today's dynamic labor market. As notes O. Khallo and others, "the main goal of professional education is the preparation of a qualified employee, a specialist of the appropriate level and profile, competitive in the labor market, competent, responsible, fluent in his profession and oriented in related fields of activity, capable of effective work in his specialty at the level of world standards, ready for permanent professional growth, social and professional mobility" [13]. In modern conditions, Ukraine is modernizing its educational and professional standards, forming an appropriate legal framework, developing an innovative National Qualifications System with the assistance of the European Education Fund. The project "TUNING" (Socrates - Tempus) was also aimed at harmonizing the activities of educational structures in Europe (Tuning). During the implementation of the "TUNING" project, a methodology for developing curricula for each of the educational cycles through a system of competencies was proposed. Taking into account the key positions of this project in Ukraine during the development of normative educational documentation makes it possible to unify the requirements for the training of specialists, serves the academic mobility of higher education seekers. One of the key competencies that should be formed in a university graduates is the ability to communicate professionally. We call this competence as terminological and give it a more detailed definition: "A set of linguistic knowledge about terms, their structure, understanding and perception of professional terminology as an organized system, as well as the ability to operate these knowledges, the skills of normative use of terms in the process of future professional or research activities" [12]. We believe that the development of terminological competence should be based on knowledge of the linguistic features of terminological units (analysis of terms by their structure, methods of formation, origin), understanding of lexical and semantic processes occurring within the specialty, the ability to correctly choose grammatical forms of terminological units etc. Such knowledge will help students to understand the patterns of creation of names of scientific concepts, will be the basis for the development of their professional knowledge and skills. In the future, students will be able to competently use terminological vocabulary in all areas of professional activity. Undoubtedly, effective methodological tools for processing linguistic material are also important.

The purpose of our exploration is the scientific and theoretical substantiation of the methodology of formation of Ukrainian-language terminological competence among future specialists of the woodworking industry. This necessitated the following tasks:

- To analyze the current state of the problem of terminological competence formation in higher education applicants;
- To justify the criteria for selection of educational material and to make this selection;
- To create an algorithm for analyzing the linguistic features of woodworking terms;
- To determine and test the optimal methodological methods for mastering woodworking terminology.

The hypothesis of the study is based on the assumption that a high level of terminological competence in professional communication can be achieved under the conditions of mastering the linguistic specificity of sectoral terminology.

#### 2 Literature Review

The problem of teaching the terminology of a particular profession is one of the tasks of applied linguistics, because the current trends in applied linguistics "include its application to a particular social, technical, economic or political field" [15]. Also important is that "the content of the educational material is discussed within several subjects which complement one another and analyse professional terms and notions from different perspectives... For example, thematic language material can be discussed at all the subjects which are connected with learning scientific and professional terminology" [17].

This problem is not sufficiently covered in the scientific literature. In Ukraine, these issues are considered mainly in the context of teaching students a foreign language for specific purposes [1, 16-18]. Ukrainian scientists also indicate the advisability of studying the professional terminological apparatus by students in the linguistic aspect. L. Ruskulis, in fact, substantiates the need to study the language of the specialty, which will provide purposeful mastering and enrichment of the active terminology apparatus [22]. L. Baranovska notes that it is necessary for students to learn both terminology and professional vocabulary, because professional communication of specialists is impossible without using the actual Ukrainian words which make up the student's common vocabulary and are widely used as single-word and word-combination names of scientific concepts [2]. As well "important work is the enrichment of terminological vocabulary at the expense of borrowings, an active explanatory activity in this direction not only increases students' appreciation of teaching professional competence but also helps to bring up qualified specialists" [8].

We agree with the C. Castellvi's view that "a theory of language, which would describe and explain terminological units, should clarify how new special knowledge is produced and is synthesised in a terminological unit" [5].

According to I. Drozdova [6], mastering the basics of any profession begins with a system of general and professional knowledge, that is, mastering the scientific discourse of the profession, and for the fluency in oral and written forms of professional communication, students must have a sufficiently active vocabulary of professional terminology, they should be

able to correctly use special lexical units, depending on the form and conditions of communication. Receptive and productive mastery of terminological vocabulary requires special methodical techniques and special exercises.

Both in a foreign and the Ukrainian language for specific purposes (professional language), the curriculum development should be based on relevant requirements. Such materials "have to embrace linguistic competence and the skills of its use perfectly, and not to concentrate on development of one of the skills; to be based on academic and professional materials; to meet the requirements of the program accurately; to be able to transform easily and to be relevant; to stimulate interaction between students; to be professionally printed and edited; to meet the criteria of authenticity; to help teachers to elaborate individual style of presenting material; to present linguistic units in context" [17].

Despite the previous research, the problem of terminological competence formation in future specialists of different industries, including woodworking, remains actual.

#### 3 Materials and Methods

Terminological competence can be formed by acquiring future specialists of the system of special knowledge, cognitive skills and practical skills that related to branch terminology while studying courses "Ukrainian language (for specific purposes)", "Professional terminology", "Culture of Ukrainian scientific language") in higher education institutions. The author's methodology is based on a logical group of methodical techniques (analysis, synthesis, comparison, opposition, analogy, generalization, etc.) involved in the development of professionally oriented material during various forms of work.

The algorithm of woodworking terminology analysis is based on all logical methodical techniques and consists of the following stages:

- The first the definition of "term", "terminology", formation of the woodworking terminology;
- The second taxonomy of nominations in special purpose language;
- The third semantic stratification of terms;
- The fourth characteristics of terms regarding to their origin:
- The fifth formal and structural typology of terminology.

The criterion for the selection of educational material coordinates with the formation of the woodworking terminology, consisting of lexical units, related to processing and conversion of wood. Corpus of terms is compiled from specialized dictionaries, including "Explanatory Forestry Dictionary" [26], "English-Ukrainian, Ukrainian-English Dictionary of Wood Science & Technology" [3], "Woodworking Dictionary" [10]. Some of the terms are selected from specific literature: monographs [14], textbook [4]. In general, the corpus of woodworking terms has around 2000 lexical units.

# 4 Results and Discussion

## 4.1 The First Stage

Studying the key theoretical issues of "term", "terminology" is a compulsory component of vocational language education. We interpret the term as a word or phrase that denotes the concept of a special field of communication in science, production, technology, art, in a specific field of knowledge or human activity, that is, a unit of special purpose language. P. Hacken ten notes that in the traditional understanding of terminology, a terminological definition gives necessary and sufficient conditions for a concept. However, natural concepts are based on prototypes. Prototypes are marked by typicality effects with fuzzy boundaries determined by approximate, scalar conditions and preference rules. For a significant part of specialized vocabulary, imposing a terminological definition is problematic, because it is a fairly arbitrary decision to fix precise boundaries

in a continuum. The relevant concepts are based on prototypes, in the same way as natural concepts. We only find strict terminological definitions when it is necessary to determine exact boundaries [11].

Sectoral terminology (a set of terms of a particular industry) is considered as a terminological system. We emphasize that the systematic terminology is caused by two types of relationships that provide multiple terms of a systemic nature: logical and linguistic (syntagmatic and paradigmatic). With the help of such methodological logical techniques as comparison, opposing, we analyze the main requirements for the term: systematic, presence of definition, brevity, conformity to the notion, uniqueness, stylistic neutrality, conformity to the norms of language, derivative ability.

We emphasize that "terminology is the most mobile, flexible part of national vocabulary; the constant development of society, the advancement of science and technology cause an urgent need for the names of new phenomena and concepts" [23].

Formation of woodworking terms corpus is based on dictionaries. Scientists state that in a globalised society, terminological dictionaries – including resources such as knowledge and terminological databases, ontologies, wordnets, "traditional" dictionaries, etc. – should comply with both human and machine needs. Changes regarding information and language processing brought forward by the evolution of society have led to a series of consequences in: (I) the design of terminological resources; (II) the way data and knowledge are represented; (III) the way data are interralated, both within and between resources; (IV) the way users access data; and (V) users' expectations [20]. It is very important to develop the skills of systematic use of vocabulary of different types among higher education students.

In our opinion, the following tasks are also effective at this stage: to define terms in the text and to find out their definitions, to choose terms to the definitions offered by the teacher, to make a vocabulary for the professional text; it is advisable to offer students to compile a mini-dictionary of unfamiliar professional terms.

# 4.2 The Second Stage

Based on logical methodological techniques of analogy and generalization, we consider the taxonomy of the nominations of the woodworking industry in a special purpose language. Such a taxonomy unites four classes of nominative units that have a branched internal hierarchy:

## 1) Terms:

a) General scientific terms (аналіз / analiz (analysis), оцінка / otsinka (evaluation), план / plan (plan), структура / struktura (structure), система / systema (system), метод / metod (method));

# b) Interdisciplinary terms:

- Technical (автоклав / avtoklav (autoclave), кран баштовий / kran bashtovy (tower crane)),
- Mathematical (κym / ktt (angle), κpyz / kruh (circle), ∂iamemp / diametr (diameter)),
- Chemical (антипірен / antypiren (fire retardant), антисептик / antyseptyk (antiseptic)),
- Physical (плазма / plazma (plasma), плазмотрон / plazmotron (plasmatron), індуктор / inductor (induktor)),
- Biological (волокно деревне / volokno derevne (xylem fiber; labriform fiber), волокно луб'яне / volokno lubiane (bast fiber)),
- Sociological (вибірка випадкова / vybirka vypadkova (sampling random), вибірка об'єднана / vybirka obiednana (sampling combined)),
- Artistic (декоративний елемент / dekoratyvnyi element (decorative element), мозайка / mozaika (mosaic)),

- Military (пістолет / pistolet (gun), патрон / patron (cartridge));
- c) Special (брус / brus (cant), пиломатеріал / pylomaterial (sawn timber), деревина пресована / derevyna presovana (pressed wood), верстат стрічкопилковй / verstat strichkopylkovi (band saw), брикет стружковий / bryket struzhkovyi (chip briquette));
- 2) Terminologised common lexical units (дошка / doshka (board), деталь / detal (detail), шафа / shafa (wardrobe), стіл / stil (table), тріщини / trishchyny (cracks), зарість / zarist (wood damage), сосна /sosna (pine), дуб / dub (oak));
- 3) Professionalisms spoken words used by representatives of a particular profession (for example, горбач / horbach (compass planer), обапіл / obapil (half-beam), відкол / vidkol (splitting), киянка / kiianka (mallet), блят / bliat (tabletop));
- 4) Nomenclature is a set of names to indicate the objects of the industry (for example, wood-base materials ("STRACTUREFRAME", "TOUCH-WOOD", "ULTRASPEN"), boards (ΜДΦ (MDF), ДСП / DSP (chipboard), ДВП / DVP (fiberboard)), saws, machines (SOCOMEC TM-160, TM-220, SOCOMEC TMX-260).

Among the types of practical work the next one are dominated: tasks for the analysis of terms on the possibility of their use in other terminological systems, search for intersectoral and specialized terms in a professional text, comparing the meanings of common words with similar terms of woodworking. Working with the dictionary of the specialty involves the search for terms that acquire ambiguity in various fields of science, general scientific terms

## 4.3 The Third Stage

Working with the thematic (semantic) groups of woodworking terminology contributes to the development of terminological competence of higher education applicants. In thematic sets words are combined not by the linguistic, but by extraleural communications. The distribution of terms is based on the denotative value component. The woodworking terms corpus on the lessons with students is divided into thematic groups, considering different types of paradigmatic relations in each of them.

As a result, semantic stratification looks like this:

- Groups of material (шпон/shpon (veneer), плахта/
  plakhta (short half section timber), завилькувата
  деревина/ zavylkuvata derevyna (wavy-grainedwood),
  лісоматеріали круглі/ lisomaterialy kruhli (roudwood),
  стружкова плита з однорідної стружки/ struzhkova
  plyta z odnoridnoi struzhky (homogeneous particleboard),
  дошка клиноподібного перерізу/ doshka klynopodibnoho
  pererizu (feather-edge particleboard), екструзійна
  стружкова плита/ ekstruziina struzhkova plyta
  (extruded particleboard), необрізна дошка/ пеоbrizna
  doshka (unsquared particleboard));
- Production processes and their components (лісопиляння / lisopyliannia (saw-milling), різання / rizannia (cutting, slicing), прифугування / pryfuhuvannia (straight jointing), кут різання / kut rizannia (cutting angle), кут фрезерування / kut frezeruvannia (milling angle), проварювання деревини / provariuvannia derevyny (wood boiling)):
- Names of equipment, devices (лісонагромаджувач/ lisonahromadzhuvach (woodbunk), повітряна сушарка/ povitriana susharka (air-drier), стрічковий конвеєр/ strichkovyi konveier (belt conveyor), верстат для фугування крайки / verstat dlia fuhuvannia kraiky (edge розвантажувальний trimmer) пристрій / rozvantazhuvalnyi prystrii (discharging device), ushchilniuvach ушільнювач / (filling пневмовантажник / pnevmovantazhnyk (pneumatic

- loader), рулонотримач / rulonotrymach (roll lifting device)):
- Tools (киянка / kyianka (mallet), фуганок / fuhanok (plane), шпунтубель / shpuntubel (grooving), гембель / hembel (bench plane), струг / struh (shave plane), пилка стрічкова / pylka strichkova (band-saw)); workpieces and their elements (нагель / nahel (dovel / nog), прокладка / prokladka (gasket / laying), крайка / kraika (edge), личкування / lychkuvannia (facing), лиштва / lyshtva (casing moulding / casihg));
- Types of joints (шип зубчастий / shyp zubchastyi (serrated dowel), з'єднання нероз'ємне / z'iednannia neroz'iemne (permanent joint), з'єднання клейове / z'iednannia kleiove (adhesive joint)); manufactured defects (тріщина / trishchyna (crack), дефект шліфування / defekt shlifuvannia (sanding defect), дефект обробки / defekt obrobky (manufactured defect), прогалина в лакофарбовому покритті / prohalyna v lakofarbovomu pokrytti (blank in paint coating));
- Wood defects (заболонь/ zabolon (supwood), провушина / provushyna (ear / eye), жолоблення / zholoblennia (warping), тріщини усихання / trishchyny usykhannia (seasoning check / desiccation check), видима вада / vydyma vada (open defect));
- Special workshops, sections (верхній лісовий склад / verkhnii lisovyi sklad (forest log depot), місце складування деревини / mistse skladuvannia derevyny (wood depot), ремонтна майстерня / remontna maisternia (maintenance depot), цех обробки щитів / tsekh obrobky shchytiv (panel department), відділ технічного контролю / viddil tekhnichnoho kontroliu (quality control department));
- Types of lumber (брус / brus (cant), горбиль / horbyl (slab / half beam), пиломатеріал калібрований / pylomaterial kalibrovanyi (graded sawn timber), пиломатеріал конструкційний / pylomaterial konstruktsiinyi (framing timber), бічна дошка / bichna doshka (outer board), обапіл дощатий / obapil doshchatyi (board slab));
- Substances, acids (дубильна речовина / dubylna rechovyna (tanning), клей-розплав / klei-rozplav (hot-melt adhesive), амінокислота / aminokyslota (aminoacid), смоляні кислоти / smoliani kysloty (resin acids), дубильна кислота / dubylna kyslota (tannic acid));
- Finishing (оббивка / obbyvka (lining / slatting), декоративна деталь / dekoratyvna detal (ornamental detail), декоративна деревина / dekoratyvna derevyna (ornamental wood), різьблення ажурне / rizblennia azhurne (fretwork / pierced work), різьблення рельєфне / rizblennia reliefne (relief carving));
- Product names (шафа кухонна / shafa kukhonna (cupboard), шафа комбінована / shafa kombinovana (combined cabinet), крісло-ліжко / krislo-lizhko (armchair-bed), крісло для відпочинку / krislo dlia vidpochynku (lounge chair), ліжко одинарне / lizhko odynarne (single bed));
- Persons by type of activity (лісоруб / lisorub (wood chopper / feller), браконьєр / brakonier (poacher), майстер лісу / maister lisu (forest technician), різьбяр по дереву / rizbiar po derevu (woodcarver), мебляр / mebliar (furnisher)), etc.

We offer students the following types of practical work for better remembering semantic stratification of terms: the task of assigning the given terms to a certain thematic group, distinguishing the semantics of terms in a professional text.

Based on our own experience, we can conclude that the acquisition of new terms of woodworking is facilitated by intellect maps as one of the methods of visualization and structuring of large arrays of new concepts, as well as methods of associative and logical organization of new terminology in students' memory. In general, semantic stratification of terms is necessary for students to understand the systemic organization of terms, which promoted the correct use of the terms in future professional speech.

## 4.4 The Fourth Stage

At this stage, it is advisable to explain the specifics of professional terms regarding their origin. In the terminology of woodworking, both Ukrainian (дошка / doshka (board), заболонь / zabolon (supwood), лісопиляння / lisopyliannia (saw-milling), плахта / plakhta (short split log)) and foreign terms (автоклав / avtoklav (autoclave), штанга / shtanha (handing rod), шпон / shpon (veneer)) are used.

The questions of the origin of terms and their use in the system of Ukrainian woodworking terminology are actualized by the expediency or inexpediency of using borrowings in any terminology system in general. Students should be explained that borrowings are justified and useful when they cannot be replaced by words in the native language and when they are already in its vocabulary and add a special clarifying tone to the concept being conveyed. It is not advisable to use a foreign term when there is a term of the native language with the same meaning. It is also not advisable to use borrowing if the term is too long and difficult to learn.

In the terminological system of woodworking borrowings come from the following languages: Latin (npec / pres (press), текстура / tekstura (texsture), орнамент / ornament трансформація (ornament), transformatsiia (transformation)); Greek (плінтус / plintus (baseboard), mun / typ (type)); German (шпала / shpala (sleeper), штабелер / shtabeler (stacker), штапик / shpon (glazingnfillet; glazing moulding), кронштейн / kronshtein (bracket)); French (copmuмент / sortyment (sort log; assortment), napkem/ parket (parquet), фриз / fryz (frieze), фурнітура / furnitura (fittings)); English (база технологічна / baza tekhnolohichna (processing datum surface), плита / plyta (plate; board), моніторинг / monitorynh (monitoring), контейнер / konteiner (container)); Italian (інтарсія / intarsiia (intarsia), фестон / feston (festoon), mpadapem / trafaret (stencil)).

An important place in the process of borrowing is occupied by international terminological elements, which include roots and affixes that preserve the unity of pronunciation and semantics in at least a few European languages (aemo-/avto-(auto), μίκρο-/mikro (micro), npec-/ pres- (press)). International terminological elements are mainly of Greek (aemo-/avto-(auto), μίκρο-/ mikro- (micro), μακρο-/ makro- (macro), μίπρο-/nitro- (nitro)) and Latin origin (είδρο-/vibro-(vibro), npec-/ pres- (press)). Less commonly used terms with components of German (μινμιμπ-/shpunt- (groove), μιπαδ-/shtab- (bead), μιπαμπ-/shtamp- (stamp), French (δρικεμ-/bryket-(briquette), φρes-/frez- (milling)), English (διοκ-/blok-(block)), Dutch (μιπαπο-/shpalo-(sleeper)), Persian (mupco-/tyrso-(sawdust)), etc. origin.

Borrowed term elements can take a different position in the term:

- Are at the beginning of the word (in the preposition), for example: автоклав / avtoklav (autoclave), автолісовоз / avtolisovoz (timber carrier). автотрісковоз avtotriskovoz (chip truck), мікрошпон / mikroshpon макроструктура (microveneer), деревини derevyny (wood makrostruktura macrostructure). монодерев / monoderev (monoderev), нітроемаль nitroemal (nitrocellulose enamel), нітролак / nitrolak (nitrovarnish), nitroshpaklivka нітрошпаклівка (nitroputty));
- Occupy a position at the end of the word (postposition), for example: (-бель, -логія, -літ (цинубель / tsynubel (scraper plane), типологія / typolohiia (typology), ламеліт / lamelit (lamelit), тирсоліт / tyrsolit (pressed woodwaste sheet));
- Can be used as independent units (unon / shpon (veneer), unyhm / shpunt (groove), uma6 / shtab (bead)).

Understanding the meanings of such terms and its position in the term are essential in the process of mastering professional

terminology, as it makes it easier for students to memorize professional terms.

On the whole at this stage students learn to analyze borrowed terms used in the Ukrainian language, remember the meaning of such roots and affixes. Different types of exercises and tasks can help this process, including grouping terms of origin, searching in a special dictionary of terms with certain indefinite components, grouping foreign terms based on their meaning, determining the meaning of terms based on semantics analysis of word-forming components.

## 4.5 The Fifth Stage

This stage is the most difficult in the formation of terminological competence, since it is necessary to analyze the woodworking terminology on several parameters, which represent their formal and structural typology. Note that, in the Ukrainian terminological system of woodworking industry, the process of naming special concepts is carried out by using both one-word terms: (деревина / derevyna (wood), copmимент / sortyment (sort log / assortment), mpicковоз / triskovoz (wood chips truck), штаб / shtab (bend), прокладка / prokladka (shim plate), umanuk / shtapyk (glazing fillet / glazing moulding), лісозаготівля / lisozahotivlia (logging / timber harvesting), пресування / presuvannia (pressing)), and terminological phrases (брикет стружковий/ bryket struzhkovyi (chip briquette), порода головна / poroda holovna (principal species), окоренок відрізаний / okorenok vidrizanyi (butt-of / long butt), розкрій пиломатеріалу / rozkrii pylomaterialu (wood cutting / розмір колоди/ rozmir kolody (log timber cutting), dimensions), проникність деревини/ pronyknist derevyny потік (permeability ofwood), лісопильний стрічковопилковий / potik lisopylnyi strichkovopylkovyi (band headrig sawing line)).

To create one-word terms, a morphological method is used, "which is to combine affixational morphemes with the root or derivative part of a word according to the laws of word-formation of the Ukrainian language" (Symonenko, 1991). The terminological phrases are also different in their structure, including:

- Simple (two-word, or binominal) (сировина деревна/ syrovyna derevna (wood raw material), склад лісоматеріалів / sklad lisomaterialiv (forest depot), площа пропилювання / ploshcha propyliuvannia (backcut area), гаряче ламінування / hariache laminuvannia (hotpress), ланцюговий лісотранспортер / lantsiuhovyi lisotransporter (chain conveyor), пресування деревини / presuvannia derevyny (wood pressing), устатковання тріскосортувальне / ustatkovannia triskosortuvalne (chip sorting plant));
- Complex, which are composed of three, four, or more component elements, for example: terminological phrases (просочування деревини під тиском/ prosochuvannia derevyny pid tyskom (pressure impregnation of wood), кут загострення різця / kut zahostrennia riztsia (tool angle), стрічково-ланцюговий конвеєр / strichkovo-lantsiuhovyi konveier (belt chain conveyor), фреза з вставленими зубами/ freza z vstavlenymy zubamy (insert teeth cutter), пилка електромоторна ланцюгова/ pylka elektromotorna lantsiuhova (electric chain saw)), four-word term combinations (деревна зола шпилькових порід / derevna zola shpylkovykh porid (softwood ash), робоча поверхня сушильного циліндра / robocha poverkhnia sushylnoho tsylindra (drier-effective area), просочування деревини способом вимочування/ prosochuvannia derevyny sposobom vymochuvannia (dip infiltration of wood steeping impregnation of wood), склеювання деревини гарячим способом/ skleiuvannia derevyny hariachym sposobom (hot-gluing of wood)), five-word combinations (шпон з екзотичним складним текстурним малюнком / shpon z ekzotychnym skladnym teksturnvm maliunkom (wild figured veneer), просочування деревини способом тиск – вакуум/

prosochuvannia derevyny sposobom tysk – vakuum (pressure – vacuum impregnation of wood)).

Attributive-nominative terminological phrases are formed by combining two meaningful words according to the following structural models: "adjective + noun" (деревна стружка/ derevna struzhka (wood shavings), шип зубчастий/ shyp zubchastyi (serrated dowel), стругальний верстат / struhalnyi verstat (planning machine), лущильний верстат / lushchylnyi verstat (rotary-cutting lathe), сировинні рослини/ syrovynni roslyny (raw material plants)), "participle + noun" (or vice (механізований склад / mekhanizovanyi sklad versa) (mechanized warehouse), деревина пресована / derevyna presovana (pressed wood), деревина гнутоклесна / derevyna hnutokleiena (curved laminated wood), деревина металізована / derevyna metalizovana (metallized wood), фанера шліфована / fanera shlifovana (sanded plywood / деревина модифікована / panel), modyfikovana (modified wood)).

In such terminological phrases the noun performs the main nominative function while the adjective / participle specifies, indicates additional features of the basic concept, for example: unnoh / shpon (veneer) — "thin sheet of wood" [26] and unnoh форматний / shpon formatnyi (full sized veneer) — "veneer of established sizes in accordance with regulatory and technical documentation" [26], unnoh лущений / shpon lushchenyi (rotarycut veneer) — "veneer of specified thickness, obtained during peeling of peeler block" [26], unnoh просочений / shpon prosochenyi (treated veneer) — "veneer conditioned in the impregnating solution" [26], unnoh cmpyzahuй / shpon struhanyi (knife-cut veneer) — "veneer obtained during planing of a bar or flitch" [26] and others.

To more accurately indicate the functional purpose of the equipment for wood processing, terminological phrases with an attributive component are often used - a compound word (дрібнотоварне господарство / dribnotovarne hospodarstvo (small-wood forestry), деревообробний цех/ derevoobrobnyi tsekh (woodshop), пункт лісонавантажувальний / punkt lisonavantazhuvalnyi (landing), маломірна деревина / malomirna derevyna (small-sized wood), деревностружкова плита / derevnostruzhkova plyta (wood-particle board / particleboard), верстат круглопилковий обрізний / verstat kruhlopylkovyi obriznyi (circular trimming machine), sepcmam ножогострильний / verstat nozhohostrylnyi (knife-grinder), верстат ребросклеювальний/ verstat rebroskleiuvalnyi (veneer composer / veneer strip assembly machine), sepcmam стрічкопилковий / verstat strichkopylkovyi (band saw), верстат тарно-брусівний / verstat tarno-brusivnyi (squaring machine for box board production), верстат тарноділильний / verstat tarno-dilylnyi (recutting machine for box board production), верстат фрезерно-брусівний / verstat frezerno-brusivnyi (chipper canter), верстат фрезернопиляльний / verstat frezerno-pylialnyi (chipper edger / flacer).

A structural model "noun + noun in the genitive case of the singular" has a high level of productivity in the creation of nominal-nominal terminological phrases in woodworking, for example: (ширина лісосіки / shyryna lisosiky (cutting area width), конвеср для лісоматеріалів/ konveier lisomaterialiv (wood conveyor), склеювання деревини/ skleiuvannia derevyny (wood gluing), виробництво шпону/ vyrobnytstvo shponu (veneer-cutting), оброблення деревини/ obroblennia derevyny (woodworking), оциліндрування колоди / otsylindruvannia kolody (log rounding), очищення місця рубки / ochyshchennia mistsia rubky (slash disposal), лісу / sortymentatsiia сортиментація lisu assortmentation)). Often terminological phrases of this type are complicated by an attributive component, for example: сушіння деревини / sushinnia derevyny (wood drying) and сушіння деревини газопарове / sushinnia derevyny hazoparove (gassteam wood drying), сушіння деревини комбіноване / sushinnia derevyny kombinovane (combined drying of wood), сушіння деревини конвективне/ sushinnia derevyny konvektyvne (convective drying of wood).

The structural model "noun + noun in the instrumental case of the singular" has less productivity (личкування шпоном / lychkuvannia shponom (veneering), посадка із зазором / posadka iz zazorom (clearance fit), посадка з натягом / posadka z natiahom (interference fit / force fit)).

The analysis revealed that when creating complex terminological phrases, various types of subordination are mainly used – agreement (основний брус / osnovnyi brus (sill ріесе), щільне стосування / shchilne stosuvannia (solid piling), виробництво лісопильне / vyrobnytstvo lisopylne (sawing production / sawmilling), паркетні дошки / parketni doshky (parquet board)) or government (cmona шпону / stopa shponu (veneer pile), вироби з лози / vyroby z lozy (wickerwork), гравірування по деревині / hraviruvannia po derevyni (wood engraving), пониження пеньків / ponyzhennia penkiv (ground level stump cutting)). Each such term has its own construction scheme and specific lexical content.

At this stage, we offer students the tasks to correct stylistic errors in terminological phrases, the formation of terminological phrases on the core word or on the basis of the proposed pairs of words. Another important task in the educational process is to explain to students that the terms can be words of different pairs of speech, and not just nouns. As P. Faber and others point out, "another neglected area of study in Terminology involves the specialized knowledge units that are designated by parts of speech other than nouns, such as adjectives or verbs" [9].

An analysis of the part-of-speech expression of woodworking terms made it possible to find out that special concepts can be expressed by nouns (торцювання / tortsiuvannia (trimming), шліфування / shlifuvannia (abrading / grinding / sanding), накладка / nakladka (cover plate / strap), стружка / struzhka (shaving), ущільнювач / ushchilniuvach (packer), гребінь / hrebin (tongue / tenon)), adjectives (довгомірний / dovhomirnyi (long-timber), wood) довговолокнистий / dovhovoloknystyi (long-fibered), дерев'яний/ derev'ianyi (wooden), напрямна / napriamna (guide fence / guide strip)), verbs, in particular, participles (викривлений/ vykryvlenyi (wry), абсорбований / absorbovanyi (absorbed), замкнений / zamknenyi (locked), висушений на повітрі / vysushenyi na povitri (air -dried), обличкований / oblychkovanyi (clad / lined /

The above analysis allows explaining to students the structure of professional terms and their belonging to a part of speech, which is very important for development of the ability to determine the grammatical features of the term, and therefore, their normative use in professional speech. In this context, we also explain to students that, as rightly remarks Pitkänen-Heikkilä [19], noun is term that directly refer to concept, an adjective characterizes the referent, while an adverbial tells something about, for example, its state or place, a verb again tells something about the action of the referent. Among the types of practical work for students there are tasks to determine the partial linguistic affiliation of terms, analysis of adjective terms, adverbs and verbs in relation to their meaning.

The peculiarities of terminological word formation "is associated with the very specifics of the term as a lexical unit of a limited sphere of use" [24]. In terminological word formation, it is important and necessary to use specialized word-formation morphemes to create and designate specific meanings. Without even understanding the meaning of the term, but analyzing its structure, determining word-formation tools, the student can understand what term means, student can "find literal meaning from the meaning of the term elements that are part of it" [7]. In view of the above, learning and understanding by students of ways and means of creating terms is of particular relevance. The students should be explained that the creation of terms occurs according to the same models as word formation in general, that the morphological features of terms and common vocabulary are identical. However, in the process of terminological wordformation, it is necessary to choose specific means (morphemes) that would meet the requirements for special names and point to specific semantics.

Let us consider in more detail the morphological method of creating woodworking terms. As is known, "the morphological method of word-formation combines affixal and non-affixal methods, abbreviation, conversion, stem-formation, word compounding" [21].

The most productive in affixal method of creating woodworking terms is the use of suffixes to denote new concepts. In the sufflixal creation of woodworking terms, two word-building patterns are used:

- 1) "Verbal forming stem + suffixes -нн- (-nn-), -aч- (-ach-), -ак- (-ak-), -ик- (-yk-), -ник- (-nyk-), -к- (-k-), -ieк- (-ivk-), -ок- (-ok-), -ець (-ets')" (брусування / brusuvannia (slabbing), брикетування / bryketuvannia (briquetting), затісування / zatisuvannia (sniping / butting / heving), циклювання / tsykliuvannia (scratching), затискач / zatyskach (clamp), притискач / prytyskach (work-engaging member), лежак / lezhak (desk-chair), штапик / shtapyk (glazing fillet / glazing moulding), здимник / zdymnyk (rezin tapper), заготовка / zahotovka (stock), засувка / zasuvka (latch / locking bar), кальовка / kalovka (moulding), шпаклівка / shpaklivka (putty), брусок / brusok (bar), різець / rizets (chisel)).
- 2) "Nominal forming stem + suffixes -κ- (-k-), -aκ- (-ak-), -uκ- (-yk-), -οκ- (-ok-), -iвκ- (-ivk-), -uμ- (-yts-), -eμ- (ets-), -uль (-yl'), -aч- (-ach-)" (пилка / pylka (saw), насінник / nasinnyk (seed tree), жолобок / zholobok (gutter), ножівка / nozhivka (hand saw), полиця / polytsia (shelf), стільниця / stilnytsia (tabletop), стілець / stilets (chair), горбиль / horbyl (slab / half-beam), горбач / horbach (compass planer)).

The terms with suffixes  $-HH(\mathfrak{H})$  (-nn(ia)),  $-\kappa(a)$  (-k(a)) often specify the semantics of a term combination, for example: 3aBahmaжehhf / zavantazhennia (loading) and 3aBahmaжehhf npeca / zavantazhennia presa (loading) the press), 3aBahmaxehhf nicomamepianibe / zavantazhennia lisomaterialiv (loading) of wood), aBmomamuh aBahmaxehhf avtomatychne zavantazhennia (automatic loading); nunka / pylka (saw) and nunka masmhukoba / pylka maiatnykova (hinge saw), nunka nonepeuha / pylka poperechna (cross-cut saw), nunka pamha / pylka ramna (frame saw), nunka cmpiukoba / pylka strichkova (band-saw).

It is noted that, in a prefix way, only certain woodworking terms are formed in which prefixes nib- (piv-), напib- (napiv-) indicate a partial modification of the shape of the product (півшухляда/ pivshukhliada = напівшухляда/ паріvshukhliada (tray-type drawer)), a part / consequence of the performed action (напівфабрикат / паріvfabrykat (semi-finished product), напівмаса / паріvmasa (half-stuff / half-stock), півпотемок / pivpotemok (half sunk)) and the specifics of the transport (напівпричіп / паріvprychip (semi-trailer)).

Such terms also become the basis for the formation of terminological word-combination, for example: the term semi-trailer shows its productivity in three terminological combinations — напівпричіп лісовозний / паріургуснір lisovoznyi (logging semitrailer), напівпричіп спеціалізований / паріургуснір spetsializovanyi (special-purpose semi-trailer) і напівпричіп трісковоз / паріургуснір triskovoz (chip tandem trailer)

In prefix-suffixal creation of woodworking terms, the following prefixes (εi∂- (vid-), ni∂- (pid-), 3a- (za-), нa- (na-), ni∂- (pid-), npo- (pro-)) and suffixes (-κ- (-k-), -οκ- (-οk-), -uκ (-yk), -ник (-nyk)) are most commonly used: (εi∂3εμοκ / vidzemok (butt), ni∂нiæκα / pidnizhka (foot-rest), npoнiæκα / pronizhka (interjacent), заплечик / zaplechyk (shoulder), ni∂голівник / pidholivnyk (head-rest), ni∂локітник / pidholivnyk (arm-rest), ni∂moварник / pidtovarnyk (poles), наматрацник / namatratsnyk (mattress cover)).

ліктями  $\rightarrow$  підлокітник (pid liktiamy  $\rightarrow$  pidlokitnyk), під ногами  $\rightarrow$  підніжка (pid nohamy  $\rightarrow$  pidnizhka).

In the course of the study, it was found that with non-affixal creation of woodworking terms, three types of verbal forming stems are used:

- 1) Prefixal verbal stems of the perfective aspect (відколоти/vidkoloty → відкол / vidkol (splitting), відстругати відструг / vidstruh (planed remainder of a cant or a wainscot), недопиляти / nedopyliaty → недопил / nedopyl (holding wood), недорубати / nedorubaty → недоруб / nedopyl (undercut), осмолити / osmolyty → ocmoл / osmol (resinous wood), поставити / postavyty → nocmaв / postav (sawing schedule), пропиляти / propyliaty → nponuл / propyl (kerf));
- 2) Prefixal verbal stems of the imperfective aspect (npoвиcamu / provysaty → npoвиc / provys (sag), npunycκamu / prypuskaty → npunycκ / prypusk (allowance), κοποπи / koloty → κίπ / kil (stake), настилати / nastylaty → настил / nastyl (decking), npupocmamu / pryrostaty npupicm / pryrist (annual increment)):
- 3) Prefixal verbal stems of the perfective aspect ( $c\kappa ocumu/skosyty \rightarrow c\kappa ic/(shamfer/skew)$ ).

Among the types of practical work that we offer students to perform, tasks for analyzing the structure of terms, correcting errors associated with the incorrect use of prefixes, suffixes, determining the method of creating terms, selection of professional terms formed in a certain way, correct use of grammatical case forms for terms, etc.

Stem-formation and word-compounding in the creation of woodworking terms has poor productivity.

In terms formed by the stem-formation method, most often combined are:

- Indeclinable foreign language stems (автоклав / avtoklav (autoclave), дендрометр / dendrometr (dendrometer), термопрокат / termoprokat (thermorolling));
- Indeclinable foreign language part and actually the Ukrainian stems (автолісовоз / avtolisovoz (log truck / timber carrier), термообробка / termoobrobka (thermal treatment), лісотранспортер / lisotransporter (log coveyor));
- Two nominal stems (лісозахист / lisozakhyst (forest protection), лісозаготівля / lisozahotivlia (timber harvesting), лісоексплуатація / lisoekspluatatsiia (forest exploitation));
- Adjective and nominal stems (лісоматеріали / lisomaterialy (wood products), пиломатеріал / pylomaterial (sawn timber / lumber), пилопродукція / (sawn wood / lumber));
- Nominal and verbal stems (дереворит / derevoryt (woodcut), нутромір / nutromir (inside gauge), лісосплав / lisosplav (timber floating), трісковоз / triskovoz (chips truck), вантажообіг лісової дороги / vantazhoobih lisovoi dorohy (forest road freight turnover));
- Nominal and verbal stems and suffix -нн(я) (-nn(ia)) (деревооброблення / derevoobroblennia (woodworking), водопоглинання / vodopohlynannia (water absorption), водопроникнення / vodopronyknennia permeability), вуглевипалювання / vuhlevypaliuvannia (wood pyrolis / wood distillation), лісопиляння/ (saw-milling), lisopyliannia ребросклеювання / rebroskleiuvannia (splicing)), suffix -au- (-ach-) (лісонагромаджувач / lisonahromadzhuvach (woodbunk), лісонавантажувач / lisonavantazhuvach (log loader), полицетримач / polytsetrymach (shelf clip), колодоскидач / kolodoskydach (log ejector), балансоутримувач / balansoutrymuvach (asset holder)), suffix -icmь- (-ist'-) (вологопровідність / volohoprovidnist ремонтоздатність / conduction), remontozdatnist (maintainability / repairability)), suffix -

ств- (-stv-) (деревинознавство / derevynoznavstvo (wood science), suffix -ник- (-nyk-) (деревообробник / (woodworker)).

The compounding (word combination) for the formation of woodworking terms is used in those cases when it is necessary to designate one complex concept in which each component retains its lexical and grammatical meaning.

In complexe terms, the designated component is an apposition that assumes additional semantic load: it supplements, refines the meaning of the basic concept, or indicates its additional function (стіл апд мольберт → стіл -мольберт / stil-tumba (pedestal table), стіл апд тумба → стіл -тумба / stil-tumba (pedestal table), стілець апд драбинка стілець -драбинка / stiletsdrabynka (chair step-ladder), крісло апд стіл крісло -стіл/ krislo-stil (armchair-table), крісло апд ліжко крісло - ліжко / krislo-lizhko (armchair-bed), диван апд тахта диван-тахта / dyvan-takhta (convertible sofa / sofa-ottoman), шафа and стіл шафа -стіл кухонна / shafa-stil kukhonna kitchen base), шафа and перегородка шафа -перегородка / shafa-perehorodka (partition unit / room divider), прес-форма / pres-forma (press-die), шпон-рванина / shpon-rvanyna (waste veneer)).

The complexe terms in the woodworking terminology are mainly used to denote product (крісло-стіл/ krislo-stil (armchairtable), диван-ліжко / dyvan-lizhko (sofa-bed)) and specific transport (автомобіль-тягач лісовозний / avtomobil-tiahach lisovoznyi (log truck), вагон-зчеп лісовозний / vahon-zchep lisovoznyi (log-transporting coupled car), вантажообіг лісового складу / vantazhoobih lisovoho skladu (turnover of the wood yard)).

At this stage, we offer students the following exercises: tasks to correct errors in basic and word formation, combining parts of complex words in order to form terms, and so on.

The expediency of working on terminological word combination in the linguistic aspect is conditioned by the fact that students will learn to define the scope of the designated notion and its place in the professional term system, understand the nominative function of complex names, and the fact that the semantics is specified through the use of dependent words.

# 4.6 The Results of Experiment

Assessment of the level of students' mastery of terminological competence was carried out on the following indicators: high level, sufficient level, medium level, low level. At a high level, the student demonstrates deep systematic language knowledge of industry terms; realizes and purposefully works on constant improvement of own professional speech; skillfully operates with language tools. At a sufficient level, the student generally understands the need to deepen own language skills and systematically works on it; theoretical material is processed using auxiliary literature; sometimes does not follow language norms. At the intermediate level, the student is partially aware of the need to develop systematic language knowledge, practical skills and abilities to apply them, but does not have a stable motivational readiness; speech skills improve spontaneously. At a low level, the student does not consider it necessary to deepen language knowledge and develop new practical language skills; is not intrinsically motivated; makes significant mistakes in theoretical issues; recklessly operates with linguistic means.

To test the effectiveness of the author's method of forming the terminological competence of the student, a pedagogical experiment was conducted, the components of which were the ascertaining and formative stages, the analysis of the results of experimental learning. The selected stages reflected the sequence of the educational process: from understanding the level of initial knowledge of students, the formation of motivation to study to develop a system of professionally oriented linguistic and communicative knowledge, skills and abilities to apply them in practice.

The ascertaining stage of experimental training was conducted separately at the beginning of students' study of the course "Ukrainian language (for professional purposes)" at the Ukrainian National Forestry University in two groups of students: control (CG) – 25 students, experimental (EG) – 25 students. The purpose of the statement stage was to determine the initial level of formation of terminological competence of students in these groups. Exercises with basic terms of the woodworking industry were proposed. The ascertaining stage testified to a rather low level (56% in EG and 48% in CG) of language knowledge, as well as speech skills and abilities of students of woodworking terminology after studying in secondary school. The results are shown in Table 1.

Table 1: The initial level of formation in students terminological competence (in %)

Groups	High level	Sufficient level	Intermediate level	Low level
EG	4	12	28	56
CG	4	16	32	48

The data of the statement stage confirmed the need to develop an effective method of forming the terminological competence of students.

During the formative stage of experimental training, students studied the course "Ukrainian language (for professional purposes)" during the year: one group – according to traditional methods in accordance with the prepared educational and methodological complex of the discipline, and the second group - according to the author's method. The control of the level of formation of terminological competence of students after the course "Ukrainian language (for professional purposes)" was carried out with three blocks of tasks: 1 - test tasks, 2 - editing the text of scientific style, 3 - writing a short essay. Test tasks covered all topics of the course; these were closed-form tests and compliance tasks. The purpose of the text editing task was to identify the level of students' mastery of woodworking terms. The subject of written works was also focused on professional activities, namely: "My future profession", "Modern woodworking", "Eco-products in furniture production: the need for time or a tribute to fashion" and others.

Since the main purpose of the experiment was to test the effectiveness of the developed author's methodology for the formation of terminological competence in students, it is advisable to identify differences in performance for the control and experimental groups. The obtained data are shown in Table 2.

Table 2: Indicators of the levels dynamics of formation of terminological competence in students (in %)

Stages		High level	Sufficient level	Intermediate level	Low level
EG	Ascertaining	4	12	28	56
EG	Formative	20	34	24	22
D	Dynamics		+22	-4	-34
	Ascertaining stage	4	16	32	48
G	Formative stage	12	24	32	32
D	Dynamics		+8	0	-16

A comparative analysis of indicators of the levels of formation of terminological competence in students at the ascertaining and formative stages showed that the high level of terminological competence increased by 16% (EG) and 8% (CG), sufficient – by 22% (EG) and 8% (CG). Indicators (in %) of intermediate level are also indicative: -4% (EG) and 0% (CG). Indicators of low level showed better dynamics in the experimental group (-34%) than in the control group (-16%).

## **5 Conclusion**

The development of professional speech is very important for future professionals. The level of his professional

communication will depend on how well he knows the terminology of the profession, will be able to use it correctly.

In general, we state that a high level of terminological competence is needed to train qualified woodworkers. In this context, the issue of the quality use of woodworking terminology by students is of particular relevance. The development of a system of terminological knowledge in both linguistic and professional aspects is a complex linguodidactic task. To solve this, it is necessary to comprehend the linguistic specifics of professional terms as educational material. We believe that the compulsory components of students' terminological knowledge, abilities and skills are: understanding of the definition of the terms "term", "terminology"; mastering the woodworking terminology; analysis of the taxonomy of nominations in the special purpose language, mastering thematic (semantic) groups of woodworking terms (groups of materials, types of sawn timber, technological processes and their components, processing imperfections, names of equipment, devices, workpieces and their elements, types of joints, special rooms, sections, finishing methods, product names, etc.); understanding of lexical-semantic processes occurring within the terminological system of profession; ability to analyse terms by their structure, belonging to parts of speech; ability to analyse woodworking terms by the method of their creation; mastering the rules for combining terms into phrases.

Studying the structure and semantics of woodworking terms will deepen students' understanding of the formal attributes of special concepts, will contribute to the conscious use of professional terms by students, and their normative use in professional texts. The development of students' skills to reasonably choose wordformation tools for creating new professional terms is extremely relevant for their future research activity.

Such an algorithm of analysis will deepen understanding of the formal attributes of special concepts, will contribute to the conscious use of professional terms by students in professional texts. It is established that the logical group of methodical techniques (analysis, synthesis, comparison, juxtaposition, analogy, generalization, etc.) is optimal for mastering woodworking terminology. Only consistently organized learning activities will ensure the formation of a future specialist's ability to correctly apply terminological vocabulary in all areas of professional activity.

We believe that the proposed term analysis algorithm can also be used to form a system of terminological knowledge in students of other specialties.

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