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DISTINCTIVE FEATURES OF TECHNICAL VOCABULARY AND SHIPBUILDING TERMINOLOGY ACQUISITION IN CHINESE DIDACTIC ENVIRONMENT

Issues concerning students' mastering general English scientific and technical terminology in the Chinese didactic environment has been studied.

Key words: *English borrowings, shipbuilding terminology, Content and Language Integrated Learning (CLIL), lexicographic support.*

The significance of the study makes it possible to consider the techniques of optimization of introduction and mastering general and specialized scientific and technological terminology in the field of shipbuilding in the teaching this discipline in English at Chinese maritime and shipbuilding universities.

Among the methods used were the descriptive and observation ones of foreign borrowings in Chinese with systematization and classification, those of analysis and comparison of English shipbuilding terms and their Chinese equivalents.

The assumption of the research: due to the extension of integration processes of science and technology development as well as globalization intensification, that are both reflected in the languages of our everyday life, the main attention is to be paid to

mastering specialized terminology, i.e. shipbuilding theory and practice fundamentals teaching in Chinese didactic environment. It logically resulted in devoting less preference to the general scientific notions and terms since the latter are easily conceived as 'internationalisms' in almost all European languages.

The study concerns the improvement of teaching process through the development of methodological materials for mastering fundamental terminology of shipbuilding in the foreign language environment.

One of the answers to this challenge could be searched in the experience of teaching English for specific purposes (ESP). It's obvious that ESP program is integrated into the main subject matter of the students. It is aimed at learning the language in order to master a set of professional skills so as to carry on their future professional responsibilities efficiently. But in our case the first year college students' habits and skills of communicating in English are rather superfluous. Practically they are at the level of false beginners. That means that the students would not be able to improve their knowledge of language using it in their everyday production or design practice. Naturally, it is a teacher's task to create the didactic situation which is as close to the nature of their job functions as possible. But the real classroom environment shows insufficiency of this approach alone. And here we can make use of the experience of Content and Language Integrated Learning (CLIL) teaching which has been initiated within the European Union educational programs recently [1,2].

Our approach is aimed at the improvement of foreign language teaching techniques through studying a number of subjects by means of an intermediary language. In other words, in the case under consideration it is the English language that is used as an intermediary in teaching and learning non-linguistic context. It unites two objectives: studying the subject matter contents and, simultaneously, mastering the foreign language. This approach has been successfully realized in the situations where a number of disciplines is taught in a foreign language.

In connection with the above-indicated it becomes clear that the requirement to the instructor of any engineering subject delivered in English for foreign students can be summed up by two points: 1) proficiency in spoken English and 2) knowledge of

the vocabulary of related technical subject and terminological database of the subject taught.

To arrange the lexicographic support of the second point we have made an attempt to develop a manual for reading specialized literature on shipbuilding comprising short texts from fundamental disciplines of general ship design and construction. The examples of reading formulas, symbols and expressions of principal sections of mathematics as well as basic notions of physics have been included. As is known the majority of this vocabulary was formed on the basis of the words of Greek and Latin origin and constituted an international lexis layer for most European languages.

To prove the validity of the above hypothesis we had to carry out the following two steps in our study. The first was to investigate the typical types of borrowing from other languages into Chinese, and then, on the basis of quantitative research of general scientific and technical terms as well as specialized terminology of shipbuilding, come to the didactic conclusion on the ways of effective presentation and mastering of this terminology. The suggested solution to this challenge has been achieved in result of one of the author's professional experience of teaching shipbuilding for Chinese students in 2013–2014 at the admiral Makarov National University of Shipbuilding (Ukraine) and Zheijang Maritime College (People's Republic of China).

As is known[2], Modern Chinese (putunhua) comprises a number of the following types of borrowings: 1) phonetic; 2) semantic; 3) phonetic and semantic; 4) phonetic borrowing + gender word; 5) literal borrowing.

First borrowings came from English and Japanese. And at first they were introduced into Chinese with the help of phonetic means. It implied the transfer of sound imitative expression of a foreign element. For example: 开麦拉 *kāimàilā* (from English camera), 巴力门 *bālìmé* (from English Parliament), 盘尼西林 *pánníxīlín* (Penicilin). But, as Chinese language experts state, such borrowings are aliens and sound unnatural in the language of isolating type which is the case with Chinese. Therefore the process of their assimilation is rather complicated. Many words are borrowed by semantic means [3,192-193]. This technique implies the translation of a foreign word into Chinese. They are made up by Chinese lexical components and

thus bear no phonetic resemblance of a foreign word as well as their graphic forms. E.g. 电话 *diànhuà* *phone* («electricity» + «speech»).

The next two hybrid techniques of borrowings are semantic-phonetic, e.g. 因特网 *yīntèwǎng* *Internet* where the first copies the phonetic form and the second is a Chinese translation. The second hybrid technique is a phonetic borrowing plus generic (class) word. The first one has an element which resembles the borrowed word but the second component is a Chinese class word, e.g. 坦克车 *tǎnkèchē* *танк* (Engl. tank + 车 «transport means»). The literal borrowing concerns borrowed abbreviations and has nothing to do with our topic.

In formulating our hypothesis we relied upon the four of the above-indicated ways of borrowings, i.e. phonetic, phonetic and semantic, phonetic borrowing + generic word and literal borrowings. And the basis of our hypothesis lies in the assumption that the Chinese language preserves the phonic resemblance (with different degrees) of the borrowed words. The exception was the second type – semantic one, where assimilated borrowings would possess neither phonetic nor literal similarity, and the least numerous – a literal one.

Practical teaching of shipbuilding fundamentals in the Chinese language environment demonstrated that the easy recognition of such ‘internationalisms’ has put forward a real problem that could be neither avoided nor omitted.

To be certain that this is typical to all technical terminology in Chinese language today, we have attempted a brief experiment. It implied the following verification technique. First, we have picked up the most spread notions and terms of European paradigm of knowledge and thinking, using thesaurus index of main word groups as well as technological and scientific word layers from the most representative corpora linguistics samples. Then we provided each lexical unit with pin-in phonetizing symbols to demonstrate its sounding in Chinese to verify whether such units belong to what is called ‘internationalism’ and could be clearly understood as an equivalent or it does not.

Hereinafter the examples referred to are arranged as two columns: words in English and in Chinese Pin-in phonetizing system:

General notions of physics and maths:

<i>English</i>	<i>Pin-in</i>
diameter	zhíjìng
radius	bànjìng
area	qūyù
period	shíqī
acceleration	cùjìn
speed	sùdù
gravitation	wànyǒuyǐnlì
mass	kuài
normal	zhèngcháng
elasticity	tánxìng
stress	yìnglì
energy	néngyuán
coefficient	xìshù
factor	yīnsù

Names of materials, states of substance

aluminium	lǚ
magnesium	měi
copper	tóng
bronze	qīngtóng
metal	jīnshǔ

gas	qì
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liquid	yètǐ
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Nuclear physics, names of sciences

Ion	lízǐ
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proton	zhìzǐ
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electron	diànzǐ
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nucleus	hé
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physics	wùlǐ
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chemistry	huàxué
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mathematics	shùxué
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biology	shēngwù xué
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botany	zhíwù xué
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ornithology	niǎolèi xué
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medicine	yīyào
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insectology	kūnchóng xué
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astronomy	tiānwénxué
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literature	wénxué
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logics	luójí
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Technical terms

engine	fādòngjī
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cylinder	qìgāng
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piston	huósāi
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pump	bèng
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turbine	wōlún
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machinery	jīxiè
rotor	zhuànzǐ
stator	dìngzǐ
transformer	biànyāqì
condenser	jù guāng qì
refrigerator	bīngxiāng
boiler	guōlú
propeller	luóxuánjiǎng
propulsion	dònglì
yacht	yóutǐng
container ship	jízhuāngxiāng chuán
tanker	tanker
tweendeck	Èr céng jiǎbǎn

The above-indicated examples give us direct reply to the question put forward in the beginning of our study. With very few exceptions, such as ‘tanker’, ‘yacht’, and ‘logics’ which vary in Chinese pronunciation from full (tanker) to partial assimilation (‘yacht’, ‘logics’) the remaining 54 terms from the array constituted a little less than 97%.

Thus, we may come to the conclusion that the leading way of borrowings, a semantic one, results in the fact that while introducing technical texts with international lexis we can not expect their understanding by Chinese learners, as is typical for the most European languages of various language subgroups. And the task of a CLIL teacher is not to ignore such words of general science and technical vocabulary as the ones that do not cause difficulties of understanding, but deal with them equally as with ‘new’ words. The obtained data helped us to substantially alter the structure of our first edition manual [4] and adapt it for Chinese learners of shipbuilding fundamentals, especially the glossaries to the chapters and lexical exercises aimed at elimination

difficulties of newly introduced lexical material preceding the texts. The widespread ‘internationalisms’ and English borrowings of the language of science and technology (with insufficient exceptions) were dealt with as absolutely new words. In some cases they were provided with Chinese equivalents where class-room speech exercises were a priority. The didactic material can be equally useful for both the target classroom, i.e. for foreign students studying at our university, and for instructors performing educational process. The study can be also used for further study of borrowings assimilation in Chinese from the viewpoint of etymology and sociolinguistics where far reaching conclusions can be traced by a very short reference to three different words existence (cosmonaut, astronaut and taikonaut) meaning the same in Russian, English and Chinese.

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Особенности навчання загально технічній лексиці і суднобудівної термінології в китайському дидактичному середовищі

Розглянуті питання засвоєння студентами загальнонаукової й спеціальної технічної термінології в умовах китайськомовного дидактичного середовища.

***Ключові слова:** англійські запозичення, суднобудівна термінологія, інтегроване вивчення іноземної мови на матеріалі змісту спеціальних дисциплін (CLIL), лексикографічна підтримка*

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Особенности обучения общетехнической лексике в китайскоязычной языковой среде

Рассмотрены вопросы усвоения студентами общенаучной и специальной технической терминологии в условиях китайскоязычной дидактической среды.

***Ключевые слова:** английские заимствования, судостроительная терминология, интегрированное изучение иностранного языка на материале содержания специальных дисциплин (CLIL), лексикографическая поддержка.*