



THE COMPILATION OF A MULTILINGUAL TERMINOLOGICAL DICTIONARY AS A MEANS OF STUDENTS' PROFESSIONAL AND LEXICAL COMPETENCE DEVELOPMENT

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Abstract: *In the era of digitalization, globalization as well as scientific and technical progress it seems greatly significant to investigate characteristic features of e-learning means to develop professional and language competence of the students who do a course in Applied Linguistics. Therefore, the article deals with the peculiarities of electronic multilingual terminological dictionary compiling and its use in students' language acquisition, lexical competence development in particular. Electronic multilingual terminological dictionary is viewed as any reference material presented in an electronic form that provides thorough and relevant information about spelling, pronunciation, meaning and use of words. Such characteristics make it popular among, and indispensable for, the users. The research reviews the results of the study conducted within the national scientific research work № 52 "Electronic Multilingual Terminological Dictionary Compiling" at the Department of Theoretical and Applied Linguistics of Zhytomyr Polytechnic State University (Ukraine). It is a collaborative university project involving specialists in the field as well as undergraduate students. The compilation of an electronic multilingual terminological dictionary requires the knowledge of data collection, translation capability, sufficient language wording, data transport, software identification, etc. It involves five stages that include data collection and input; database creation and software identification; evaluation of its accuracy and suitability, and the necessary improvements.*

All in all, electronic multilingual terminological dictionary has a multi-aspect educational value. Its compilation contributes to language and IT skills development and greatly facilitates the professional growth of the students with a major in Applied

Linguistics. What is more, it makes international scientific cooperation possible and thus leads to constant scientific and technical development.

Keywords: lexical competence; e-learning; electronic dictionary; dictionary compiling; electronic multilingual terminological dictionary.

INTRODUCTION

Nowadays people live in an extremely fast-paced society where, despite constant technical and scientific progress, the gap between the unskilled and skilled is widening. One of the major keys to a successful and promising career is mastering the 21st century skills, such as critical thinking, problem solving, collaboration, communication, creativity and many others. Undoubtedly, the 21st century skills are greatly interrelated with language, which is one of the most significant tools in the life of all human beings. Learning and mastering languages contributes to effective modes of communication between different communities and cultures. It creates openness to changes, responsibility and integration and makes cooperation and teamwork possible. Therefore, it satisfies a growing demand for employees' professionalism, which presupposes beneficial co-existence, trust-building respect to personality, constructive dialogue and mutual creative activity (Alijevs 2005, p. 57). All in all, it leads to productive professional cooperation and thus contributes to scientific and technical development of modern society.

Therefore, we absolutely agree that the process of acquiring knowledge should be student-centered and first and foremost oriented towards holistic acquisition of the specialization (Luka, 2008). Undoubtedly, developing language competence in a knowledge society is one of the most important objectives. Therefore, it is significant to reconsider the language-learning model. It is a common known fact that proficiency comes out of cognitive and practical activity (Vigotskis, 2002; Čehlova, 2002). Thus language skills should be developed in action as experience and abilities that constitute competence require practice (Luka, 2008). Hence, it means that educators should use a great variety of techniques to invoke students' motivation, imagination and creativity. It presupposes organizing pair work, group work, and team work when students can switch on their critical thinking, assess and evaluate their peers' work, highlight strong points and provide constructive criticism and in such a way mutually help each other. On the one hand, it leads to strengthening of learners' independence and teaches them to use interdisciplinary knowledge in their constant professional development. On the other hand, it contributes to team work skills development, which is a great basis for further professional integration.

Moreover, learners have their own attitudes, motives and learning strategies that influence their learning. The sooner we make students find them out and use, the better for their skills development. Having their own experience students are able to further direct their own learning. Consequently, it contributes to the formation of productive learning environment which is based on partnership and cooperation and is full of mutual trust and respect (Blūma, 2004).

Electronic Multilingual Terminological Dictionary (EMTD) compiling is exactly the case when learners need to learn languages from inside working in both modes, individually and as a team. Teachers facilitate the process by setting tasks, giving guidelines and letting students complete the task the way they see that. It creates opportunities for students to construct professional as well as language knowledge themselves. Learners become active participants in the process and thus learning by rote (which is absolutely inappropriate in the digital age) shifts to learning by doing which helps students to quickly acquire hands on skills and become proficient in the field of study. Moreover, teachers' advice is not any more taken as an intrusion but as facilitation. As a result, students and teachers mutually enrich from such cooperation.

1. THEORETICAL BACKGROUND

The peculiarities of IT use in education have been greatly investigated by the outstanding scholars worldwide V. Bykov, O. Glazunova, M. Zhaldak, S. Lytvynova, S. Semerikov, O. Spirin, A. Striuk, Yu. Tryus, M. Shyshkina, Chao Lee, G. Chen, C. Dineva, V. Nedeva, C. Dzikite, D. Hanson-Baldauf, H.S. Hughes, F. Jian, J. Amor, Y. Juan, Yi-Xiang, K. Lepi, A. Masud, J. Yong, X. Huang, M. Jalgaonkar, A. Kanjia, P. Mell, T. Grance, M. Mircea, Al. Andreascu, K. Palanivel, S. Kuppussvami, J. Reich, Th. Daccord, A. November, B. Silky, S. Sawtantar, K. Amit, M. Simonson, S. Smaldino, M. Albright, S. Zvasek, E. Tuncay, D. Weaver and others. Thus, significant attention has been given to studying the impact of IT on teaching-learning process and finding out the ways to improve it (Hussain, 2008; Bhakta & Dutta, 2016). Moreover, the question of teachers' role, interaction mechanisms, and classroom organization has been markedly disputed (Sangra & González-Sanmamed, 2010). In addition, teachers' practices in technology-enhanced classrooms have been considerably highlighted (Al-Abdullatif & Alsaeed, 2019). What is more, mapping students' and teachers' perception on technology use has been to a great extent researched (Choy & Ng, 2015). Although, learning by doing implying IT requires more detailed study. Therefore, the article is aimed at the analysis of professional and lexical competences development through EMTD compiling.

According to the Law of Ukraine "On Higher Education", competence is interpreted as a dynamic combination of knowledge, skills, ways of thinking, professional, ideological and civic qualities, moral and ethical values, which determine a person's ability to carry out professional and further educational activities and is the result of training at a certain level of higher education. As stated in the National Qualifications Framework, competence is a person's ability to perform a certain type of activity which is expressed through knowledge, understanding, skills, values, and other personal qualities.

The main objective of professional training is to teach students to obtain, process and store information and use it effectively in professional activities. It presupposes that students get a teacher-guided practice in computer laboratories with free Internet access using cutting-edge IT as well as industry-focused practical training (Ivanchenko, 2009). At the same time, lexical competence development implies knowledge of sufficient language stock and is greatly significant in professional advancement.

Professional competence implies a sufficient skill set of academic, communication and language mastery (Blūma, 2001). Therefore, lexical competence is also viewed as a part of professional competence in terms of teaching the students who do a course in Applied Linguistics.

Computer-assisted vocabulary learning has been studied extensively by the outstanding methodologists and scientists such as R. Ellis, J. Decarrico, M. Lewis, J. Li, A. Oberg, D. Wilkins and others. However, most of the studies focus on the peculiarities of lexical competence development with access to computer-mediated dictionaries (Lin, Chan, & Hsiao, 2011). On the contrary, our idea is to improve lexical competence by means of the creation of computer-mediated dictionary, EMTD in particular.

Nowadays, the importance of EMTD is undisputable. This quick and astonishingly flexible lexical database greatly contributes to intercultural communication as well as any linguistic research. Due to constant technical and scientific progress as well as increasing globalization, EMTD has already become a universal tool for establishing professional network and facilitating both scientific and economic cooperation. The use of EMTD significantly contributes to better cross-cultural communication. It enables professional communication of outstanding scholars worldwide thus contributing to world science growth. Consequently, incorporating EMTD in educational process has become one of the main priorities of language acquisition.

There is no common understanding of what EMTD is. EMTD is also viewed as a computer database of entries specifically coded to facilitate quick word search with regard to morphological forms and with the possibility of searching word combinations and changing translation direction (Zavarueva, 2007). Hence, it is a special lexico-graphic source characterized by non-linear textual structure (mix of text and hypertext), inside and outside search (within dictionary itself and in other Internet resources), the combination of phonetic, semantic, grammatical, stylistic and encyclopedic information etc. in one entry; and availability of verbal and non-verbal means of lexical unit description (Kuprijanov, 2014).

EMTD is a universal tool for any specialist in the field. It facilitates the process of getting detailed information about the search word. It minimizes the time needed for that. EMTD is user-friendly and has various options for data processing. It is of great help for any user, a student or a teacher, an engineer or a linguist, a doctor or a translator etc. EMTD provides the list of the most frequently used terminological items in different knowledge areas. Consequently, anyone interested can get acquainted with it. It helps to get a general idea of the term searched as well as acquire in-depth knowledge how to use it in context. What is more, EMTD compilation requires knowledge of data collection, translation capability, sufficient language wording, data transport, software identification etc. Thus, the students with a major in Applied Linguistics will also develop their IT skills which are greatly beneficial for their future profession. Therefore, EMTD has tremendous potential and greatly assists learners in understanding as well as enlightening their language skills and IT competence.

2. RESULTS AND DISCUSSION

2.1. Methodology

The paper introduces the results of the study conducted within the national scientific research work № 52 “Electronic Multilingual Terminological Dictionary Compiling” at the Department of Theoretical and Applied Linguistics of Zhytomyr Polytechnic State University (Ukraine). It shows the ways to organize a student-centered pedagogical process that greatly contributes to students’ language and professional competence development and thus leads to students’ ability to compete in the labour market. Moreover, learners become more motivated and goal-oriented as they learn by doing. Therefore, they get used to live and learn that makes them continuously develop themselves.

The research started in January 2020. The sample group includes 105 undergraduate students that form 88% of all the participants and 21 teachers (12% correspondingly). All students are divided into 7 groups according to their study fields: Applied Linguistics, IT, Economics, Law, Ecology, Finance and Accounting, and Engineering. Their task is to deal with the corpus of terms in the field of students’ study. The students start taking part in EMTD compilation project during their 3-week workshop practice. The most interested and motivated learners continue their research and become equal participants of the project. Each group is guided by 3 teachers who are the specialists in the field. The teachers give recommendations, practical advice and provide the students with all assistance needed. The students and the teachers are equal partners in the project and share equal responsibilities. Therefore, their cooperation is based on the principles of equality partnership, mutual respect and cooperative learning. The students who do a course in Applied Linguistics form the most numerous group (34% of all students) as their task is to investigate linguistic peculiarities of EMTD and to create the register (see Figure 1). Such tasks are rather time-consuming and require philological background. Moreover, the students have to deal with several languages (Ukrainian, Russian, English, French, German and Chinese) searching for appropriate terminological equivalents. The second place goes to IT students (16%), who are responsible for database creation, data transport, software identification as well as technical support.

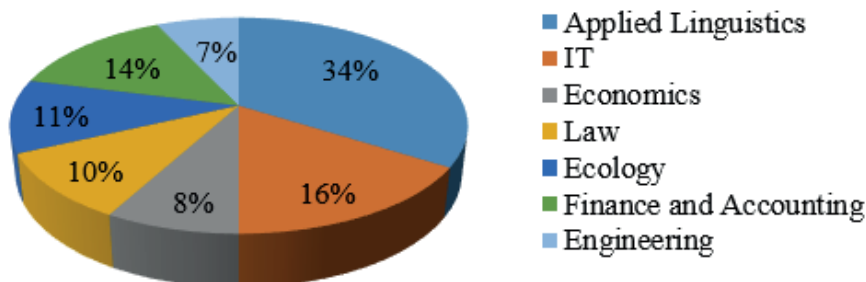


Figure 1. Study Fields in the Sample Group

Source: own work.

The students of the other groups (Economics (8%), Law (10%), Ecology (11%), Finance and Accounting (14%), Engineering (7%)) are responsible for providing reliable data in the field of study. Working on EMTD compiling gives the students an opportunity to significantly improve their professional skills and get the necessary experience which is undoubtedly beneficial for their future career. What is more, it has a great interdisciplinary value as students share their experience in different knowledge areas. Furthermore, they acquire the necessary life skills which make them be ready for an adult life.

Our study undergoes several stages. Each stage requires particular attention and is significant in its own way. The stages align with the stages of EMTD compiling and include the analysis of dictionaries available; data collection and input; database creation and software identification; evaluation of its accuracy and suitability, and the necessary improvements (see Figure 2). To successfully complete the stages the researchers have to work conscientiously and be very attentive to the details. The succession of the stages should be followed closely.

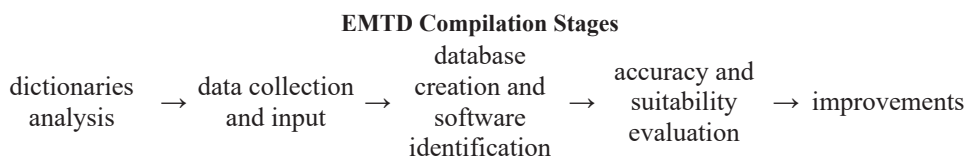


Figure 2. The Stages of EMTD Compiling

Source: own work.

To conduct our research within the stages we have used a great variety of methods, such as: – theoretical method that presupposes study of theoretical literature and sources on EMTD distinctive features, as well as peculiarities of its compiling; – empirical method which implies observing students work on EMTD compilation to find out difficulties that may occur and thus come out with possible solutions; – data obtaining method that includes students and teachers interviews, students assessment and self-assessment tests etc.; – qualitative and quantitative data processing methods to assess the results and interpret the conclusions.

All five stages of EMTD compiling require meticulous efforts to deliver. That is the process that needs great attention, perseverance and dedication. The peculiarities of the stages completion will be highlighted further.

2.2. Dictionaries Analysis

The first stage corresponds to dictionary analysis. It is one of the most essential stages. It presupposes a thorough investigation of all printed as well as electronic dictionaries available. The dictionaries are chosen according to their popularity among the users which is frequently rated by the international edition “The Guardian” (section “Culture”) and Amazon Publishing. These statistics are available for any user free of charge. The stage is aimed at finding out dictionary advantages and disadvantages and coming out with the distinctive features of a model EMTD. To perform the tasks stated the students are asked to conduct the research and fill in the table (see Table 1).

To complete the stage the students are to analyze dictionaries in terms of forms and functions. They investigate different types of dictionaries, deep into their translation capability, reflect on the significance of thesaurus, try various language-learning web-applications, look through encyclopedic reference material and consider other added features.

Table 1

Dictionary Parametrical Analysis

Dictionary	Parameters																	
	Issue Date	Dictionary Type	Dictionary Volume	Dictionary Arrangement	Dictionary Entry Size	Language Variant	Chronology	Definition	Word Frequency	Etymology	Spelling	Pronunciation	Word Morphology	Part of Speech	Grammatical Categories	Stylistic Aspect	Graphic	Pictorial Means

Source: own work.

On the basis of this research the students are able to single out the most important characteristic features of EMTD. They try all the dictionary options, consider which ones are necessary and assess their functionality. Such a critical analysis enables the learners to get a big picture of EMTD peculiarities and motivates them to create their own EMTD prototype.

2.3. Data Collection and Input

One of the major tasks and a significant part of the educator’s craft is teaching vocabulary. Lexical competence is considered as the most significant part of communicative competence (Decarrico, 2001). Its development presupposes that the students can use sufficient language stock both in its direct and indirect communication. It is the ability to determine word contextual meaning, the structure of meaning as well as compare the volume of meanings in several languages (Jumanazarov, 2018). Working on EMTD compiling, data collection and input in particular, helps the students to significantly develop their lexical competence as they are provided with authentic texts from which they choose terminological units and improve their awareness of terms by analyzing their morphological characteristics, investigating syntactic and semantic properties. It creates constructive attitude to the task and greatly contributes to getting a good command of the target lexicon. What is more, the learners acquire the necessary skills in hands-on linguistic and textual analysis in computerized learning environments which definitely leads to their future career success.

It is important to mention that the students work only with authentic materials, aimed at fulfilling social purpose in the language community (Little, Devitt& Singleton, 1989). These materials include scientific articles, journals, encyclopedias, manuals,

specialized quality newspapers, and official statistics etc. which are reliable and trustworthy. Moreover, all students are provided with the necessary criteria to search the data needed. The criteria imply the following:

- authentic language (written in the author's mother tongue);
- sufficient academic degree of the author (Doctor of Philosophy (PhD), Associate Professor, Professor);
- issue date (less than 10 years).

In addition, the students are informed about scientific articles databases, such as eLIFE, GetCITED, CiteSeer^x, PLOS ONE, Science and Technology of Advanced Materials, ScienceDirect, iJRDO journal, Directory of Open Access Journals, Microsoft Academic Research, Google Scholar and many others. By referring to them learners can easily find the necessary material for further investigation. Moreover, the students' work is mentored by the specialists in the field who have the necessary scientific degrees. The specialists guide the students and provide them with all necessary assistance. One of the specialists' primary tasks is to consider the list of terminological units the students are working on. All terms are checked as for their frequency using British National Corpus (BNC). The project on EMTD compiling has just started, although the students and the teachers have already processed up to 300 terminological units. Such a result proves that all participants are fully engaged in the process of dictionary creation and greatly motivated to achieve the objective.

Furthermore, significance is given to the creation of dictionary entries. Special attention is given to the principle that a sufficient definition of a term should facilitate its understanding as well as distinguish the related terms. Consequently, the students with the help of the specialists are to make sure that: a definition is given in the most possible comprehensive way; a definition is clear and concise; a definition has no logical contradictions; a term does not appear openly or implicitly; a term is neither overdefined nor underdefined (Devel&Kovalchuk 2016).

Sticking to the following rules guarantees accuracy in dictionary entry creation which is our main objective. What is more, the students indicate morphological and syntactic features of terminological lexemes thus giving thorough analysis of their use in context. They analyze the words in terms of spelling, pronunciation, etymology, stylistic properties; consider derivatives, semantically related words etc. In addition, quick interaction between the learners and the specialists of various fields makes it possible to provide encyclopedic references. As a result, the students study words in depth. They become aware of their meanings as well as the peculiarities of their usage. All in all, it is a common known fact that the best way to introduce new lexical units is to get learners to read texts so that they see those words in action (Harmer 2015). In that way new language input comes naturally and gradually transforms into skills. It really gives students positive motivation towards vocabulary learning.

2.4. Database Creation and Software Identification

The third stage is dedicated to database creation and software identification. It presupposes the work with electronic dictionaries publishing systems, dictionary writing systems, natural language processing systems, and software etc. It aims at pro-

viding the necessary functionality in EMTD software to satisfy the needs of EMTD users. Therefore, it should significantly contribute to automatization of usual lexicographic chores, managing the entries structures, automatic renumbering of entry elements, automatic cross-reference update, filtering features to retrieve data quickly. Moreover, it includes the work on EMTD interface, toolbar, and additional features. The peculiarities of the stage will be highlighted in the next articles.

2.5. Accuracy and Suitability Evaluation. Making Improvements

The last two stages refer to the evaluation of accuracy and suitability as well as working out the kinks. It presupposes editing and checking EMTD for compliance with the requirements. It creates final terminological product that requires high accuracy in solving linguistic ambiguity problems as well as professional issues. This stage requires meticulous efforts to secure EMTD functionality to enable effective communication of specialists in different fields. That is the final stage of the project consequently it will be discussed in the due time.

2.6. Students' and Teachers' Feedback.

Each EMTD compiling stage is followed by an online or offline meeting. At the meeting, the students and teachers discuss the results, deal with problematic issues, reconsider the tasks and objectives, and come out with solutions. Moreover, all the participants fill in the questionnaire form (see Table 2) which is aimed at students' self-assessment as well as students' progress assessment done by the teachers. Students' feedback proves that most of the learners enjoy the process of EMTD compiling (see Figure 3). It creates productive learning environment and motivates them to study.

Table 2

Progress Assessment Form

Questions	Satisfaction Score				
	Mark the square with '+'				
	1	2	3	4	5
Q1. EMTD compilation is interesting and useful.					
Q2. It is useful to work with authentic material.					
Q3. Wordanalysis contributes to its correct use.					
Q4. EMTD compilation facilitates vocabulary skills development.					

Source: own work.

Moreover, the learners state that learning by doing is much more satisfying as they know the objective and become interested in the result. In addition, collaboration with the groupmates and the teachers boosts their team spirit and has a positive feedback on their interpersonal skills. However, some students (IT, Economics, Finance and Accounting) find it rather difficult to work with authentic material and constantly need teachers' advice. Words analysis turns out to be an enjoying and tiring activity. To analyse lexical units properly the students have to revise theoretical material, which

takes additional time and efforts. Nevertheless, it contributes to students' professional competence development, which is beneficial for the learners.

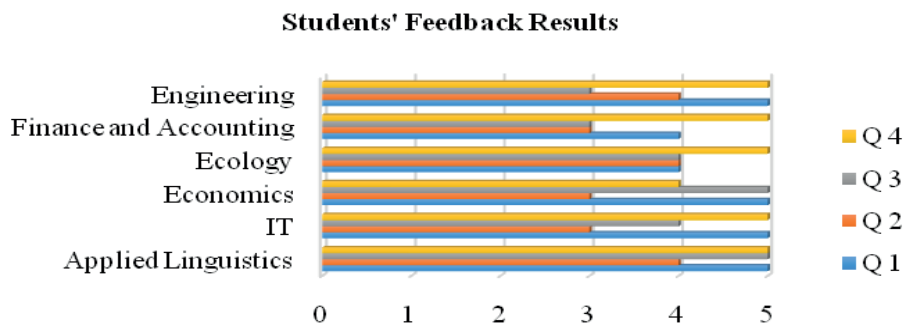


Figure 3. Students' Feedback Results

Source: own work.

Teachers' feedback results prove that the students enjoy the process of EMTD creation, despite the difficulties that they have to overcome (see Figure 4).

The educators agree that the students find it problematic to work with authentic material. Scientific style is sometimes difficult for understanding. However, thanks to teachers' assistance the learners get used to it rather quickly. Words analysis seems to be one more challenge for the students. Some students find it tiring and time-consuming. Nonetheless, despite the difficulties students' vocabulary skills are gradually improving. Therefore, we may conclude that EMTD compiling contributes to lexical competence development as well as the students' professional advancement.

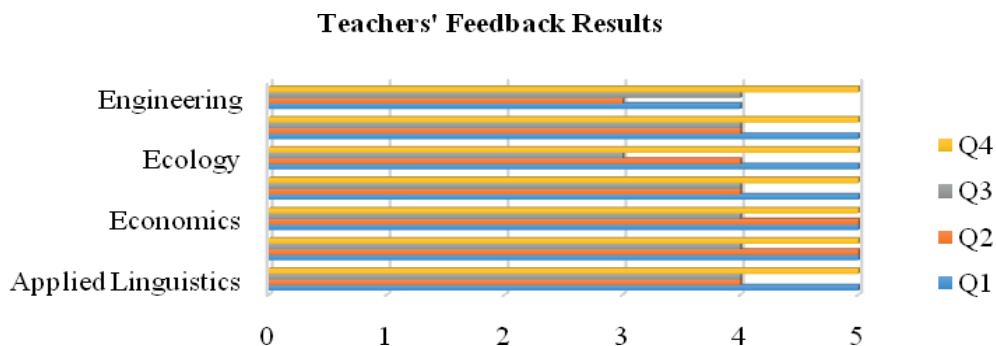


Figure 4. Teachers' Feedback Results

Source: own work.

CONCLUSION

Scientific and technical progress requires effective cooperation of specialists in different fields. Therefore, in modern marketing conditions there is even a greater demand for creative, decisive, well-educated and competitive specialists who can speak

professional foreign language fluently observing the peculiarities of different countries' traditions and values. Sufficient knowledge of foreign languages greatly contributes to the development of excellent cooperation skills. It maximizes the chances for professional advancement and thus creates opportunities for beneficial cooperation. EMTD compiling has proven to be one of the most productive ways to develop students' lexical competence as well as master their professional skills. The process of EMTD creation undergoes five stages during which the learners have an opportunity to advance their understanding of terminological units use and acquire practical skills in their analysis. Moreover, collaboration with peers and teachers facilitates students' 21st century skills development and makes students more competitive on the labour market. The prospects for further research are seen in the analysis of the peculiarities of database creation and software identification.

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