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USING BLOOM'S REVISED TAXONOMY TO DEVELOP DIGITAL LITERACIES IN THE ESP CLASSROOM

Abstract. The article explores some issues to be considered when integrating new technologies into English for Specific Purposes (ESP) learning. The main focus is on the challenges that ESP practitioners face in the context of a multilingual digital Europe. In confronting such problems as changing roles for students and teachers, the spread of English as a medium of instruction and increased emphasis on the subject content in the language classroom, it is necessary for ESP teachers to embrace innovation and develop strategies to improve students' learning. To benefit from the use of technology, ESP teachers need to concentrate on those aspects which digital knowledge and skills share with traditional literacies. When essential elements of digital literacies are singled out, it becomes possible to employ their full potential for creating a technology enhanced learning environment. This research suggests doing it by drawing upon the Taxonomy of Educational Objectives. The framework, in this case, is used to check that goals falling within different categories of the cognitive domain of learning are aligned with technology-supported instruction delivery methods. While designing instructional techniques, we heavily rely on the idea of scaffolding in the form of visual aids for enabling learners to build on prior knowledge and internalize new concepts. As practical examples show, development of digital literacies proves not only to be compatible with formation of professional intercultural communicative competence but also providing means for activating the most complex cognitive processes of conceptual understanding, critical thinking, decision making, creation and metacognition. The findings may be useful in preparing instructional activities with the help of technological tools to support ESP teaching and learning.

Keywords: English for Specific Purposes; digital literacies; Bloom's taxonomy of educational objectives.

1. INTRODUCTION

Statement of the problem. Promotion of digital literacies has been a priority of the European Union educational policies ever since the adoption of the Lisbon Strategy [1]. Development of the Digital Competence Framework for Citizens [2] within the New Skills Agenda for Europe is the result of transformation that the concept of digital competence has undergone in response to changes in social and economic life. Now it goes well beyond the confident and critical use of information technology [3, p. 7] and comprises competences in the areas of information and data literacy, communication and collaboration, media literacy, digital content creation (including programming) and safety [4, p.189/9]. In the context of Digital Europe [5, p. 5], educators face a pressing need to embrace innovation and adjust their practices to take advantage of new technological developments. Recently announced Digital Education Action Plan that shows the EU Commission's commitment to stimulating, supporting and scaling up purposeful use of digital and innovative education practices [6, p. 4] is proof of this.

Among the most affected by these reforms are ESP practitioners, whose task is to enable learners to communicate successfully in professional and academic settings. In addition to addressing the challenges arising from the effects of technology on communication and work

culture, ESP teachers have to deal with profound changes in the landscape of higher education. The shift towards internationalization of universities, that started with the Bologna Process and has been further promoted by the new initiative to build a European Education Area by 2025, has led to increasing academic mobility and to English being used as a medium of instruction for other academic subjects. Moreover, an ambitious aim for all European citizens to learn at least two foreign languages [7] is in line with the EU policy on multilingualism. The extent of this strategy was reflected in the Council Recommendations on Key Competences Framework that was modified by adding the multilingual competence aimed to develop "the ability to mediate between different languages and media" [4, p. 189/8].

National initiatives in the sphere of higher education [8; 9; 10] show that Ukraine is aligning its policies with the European agenda. Under these circumstances, ESP courses play an important role, integrating development of academic and professional communication skills with the range of competences that students need "to make the most of the opportunities and meet challenges of a fast-moving, globalized and interconnected world" [6, p. 2].

Analysis of recent research and publications. Recent studies on the use of technology in ESP classroom have been mainly concerned with the new roles that ESP teachers play in the context of innovative education and the resulting changes in the teaching methods and approaches. Another focus is on the different ways in which information and computer technologies (ICT) can be integrated in learning languages for specialized domains.

Although learner-centeredness has always been a priority of ESP, the target needs of students are becoming increasingly diversified, not least because of their good computer knowledge and skills. In parallel with the discipline knowledge that ESP learners bring into the classroom, this change put them in a less asymmetric relationship with teachers [11, p. 2] who, in turn, have a definite need for a relevant theoretical framework to guide their research and practice.

Constructivist theory, that suggests that knowledge is constructed in professional contexts through the social interaction, underpins the whole range of methods for teaching ESP in the digital age. From the standpoint of an experiential approach (Y. Degtyariova, O. Tarnopolsky, A. Toechterle, M. Warschauer), language and communicative skills are acquired in the course of gaining experience from the participation in practical activities [12, p. 27]. Since these activities are designed to simulate real-life professional situations, they involve finding solutions for real-world discipline-specific problems. Problem-based learning (PBL) (D. Belcher, D. Britt, D. Neville O. Tarnopolsky, J. Parkinson) engages groups of learners in searching the Web for sources, processing research findings and preparing them for presentations by interacting with graphics software and presentation tools. Another way to benefit from introducing PBL into ESP practices is to promote critical thinking [13]. Scholars (J. Bloch, D. Slaouti, P. Stapleton) insist on developing technology-related critical skills, such as evaluation of Internet information and use of electronic tools and sources for writing as part of English for Academic Purposes (EAP).

The use of simulation in collaborative and PBL learning has literally acquired a new dimension with application of 3D Virtual Worlds to language learning. So far, academic and applied research propelled by the European funded projects in the field of virtual reality education (i.e. AVALON, AVATAR, ENVISAGE, VR@school) has concentrated on exploiting virtual worlds in developing a variety of language skills, related competences and collaborative strategies without focusing on any specialized domains (A. Berns, M. Deutschmann, I. Kozlova, M. Peterson, D. Priven). The potential of virtual reality learning environment for an enhanced ESP classroom is yet to be explored.

Nevertheless, there is an extensive literature on the other types of computer assisted learning (CALL) / most recently, Technology-Assisted Learning (TALL) [14] environments, the use of which in ESP has been prompted by transformations in means of communication, emergence of content management systems (CMS) like Moodle and TYPO3 as well as proliferation of multiple devices to access data and join virtual communities. These studies include practical outcomes of ESP teachers' efforts to adapt their pedagogy to the new environments by designing specialized online learning courses [11], [15]. Researches of ESP online learning (I. Allen, J. Seaman, M.J. Luzón, E. Arnó-Macià) highlight that the blended learning formula [16; 17] is more common since it represents "a logical consequence of the eclectic approach to language teaching as instruction is provided both in class and online" [18, p. 11]. O. Tarnoplosky advocates relevance of constructivist blended approach to ESP learning/teaching in the context of Ukrainian tertiary education, emphasizing its experiential, interactive, interdisciplinary and flexible nature [12, p. 15-16]. The growing number of blended learning applications designed to tailor to ESP students' various needs provides an indication of the scale and scope of work undertaken [11], [15], [18], [19].

By engaging students in simulation and other meaningful activities related to their speciality, technological affordances provide a gateway to the rapid influx of content knowledge into a language classroom. This factor, along with the growing trends to use English as a Medium of Instruction (EMI) to teach university courses throughout Europe, has led to the shift in a balance between content and language in ESP programmes. This scenario leaves ESP practitioners with two alternatives [11], [20], [21]. One possibility is to collaborate with subject experts. In R. Wilkinson's review of the latest research trends on the integration of content and language in higher education, the risks and perspectives of collaboration across disciplines are in the focus of attention. The theme of commitment is also important, with an emphasis on the commitment to an innovative teaching [22, p. 610]. Another option is highly influenced by the approach known as Content Based Instruction (CBI) / Content and Language Integrated Learning (CLIL) / Integrating Content and Language in Higher Education (ICHLE). First of all, it affects a teacher's instruction that becomes less language-driven and more focused on the subject matter, which leads to predominance of task-based activities [23, p. 191]. Secondly, learning of the content through a foreign language requires careful attention to scaffolding for providing individual support in building on prior knowledge and internalizing new concepts [21], which suggests a role for instructional design theory [22, p. 611] (B. Bloom, C.M. Reigeluth, M.D. Merril) with its reliance on "flexible, computer-based learning tools" [24, p. 25].

Genre-based approach, frequently implemented in the study of the discourse structure and linguistic features of academic and professional texts (A. Cheng, K. Hyland, J.M. Swales, B. Paltridge), has been enhanced by the access to various specialized corpora via the Internet. What is more, concordance programs have made it possible to build so called do-it yourself (DIY) corpora, customised to meet ESP students' target needs [25, p. 388]. ESP researchers have also begun to contemplate multimodality of digital genres, proposing to approach multimodal texts from the semiotic perspective (B. Paltridge, P. Prior, K. Roozen, C. Tardy).

Finally, many publications contain useful references to the wide range of digital platforms and software tools to boost ESP learning, such as open-access university programmes, Massive Open Online Courses (MOOCs), 3D virtual environments, cloud sites, e-learning platforms, podcast and video-creation software, concordancers, presentation software and story-telling tools, computer-based testing tools, survey applications, video conferencing software, website content builders and others [11], [15], [18].

It is quite evident that ESP practitioners have to keep up with constant modifications of instructional methods and technological tools in order to respond to today's realities. This fact, apart from giving motivation, can also lead to anxiety as some teachers may not consider themselves to be media savvy enough or might not be sure when and how to incorporate the teaching of specific digital literacies into their practices.

The purpose of the article is to give some practical recommendations on the ways to integrate digital skills and tools into ESP courses aligning them with the selective learning outcomes. These propositions are based on the framework provided by the revised Bloom's Taxonomy of educational objectives and suggest that to increase students' ESP learning it is essential to determine the intersection between the type of digital literacy and the cognitive process it is likely to boost. Using Bloom's taxonomy as a guidance for planning and delivering instructions in accordance with students' needs, we provide specific examples that show how different aspects of digital literacies can enhance the learning environments by building meaningful experiences.

2. THE THEORETICAL BACKGROUNDS

This study draws upon such theoretical perspectives on teaching and learning as
✓ Social constructivist theory (W. G. Camp, M. Cole, P. E. Doolittle, S. Knowles,   L. Vygotsky);
✓ Cognitive learning theory (D. Ausubel, B. Bloom, J. Bruner, J. Piaget);
✓ Instructional design theory (R. M. Branch, M. D. Merrill, C. M. Reigeluth);
✓ Metacognition theory (J. H. Flavell, R. Garner, R. Mayer, S. G. Paris);
✓ Competency-based education approach (D. Beckett, I. D. Bekh, N. V. Kuzmina,   D. Mertens, I. O. Zymniaia).

3. FINDINGS

Since ICT were not developed specifically for language learning, it seems necessary to identify overlaps in digital and language competences. The parallel becomes evident, if we proceed from the notion of literacy. The definition of literacy in the revised Recommendation on Key Competences for Lifelong Learning includes not only the ability to understand, create and interpret both oral and written texts but also the mastery of "visual, sound/audio and digital materials across disciplines and contexts" [4, p. 189/8]. There is always an inextricable link between literacy and technology as writing (creating) a text, for one thing, requires a tool.

According to D. Belshaw [26], literacy should be understood as a social phenomenon comprising tool-knowledge (how to use tools) and content-knowledge (the subject matter of communication and the ability to use tools to communicate it) [26, p. 15]. Introduction of the new technological tools is speeding up and the number of literacies associated with them is growing accordingly. This explains the proliferation of digital literacy frameworks, the detailed discussion of which is beyond the scope of this paper. One thing worth mentioning though is that standard views tend to associate literacies with skills to be learned in a linear way. Even the most elaborate Digital Competence Framework for Citizens [2], also known as DigComp 2.1, which takes into consideration the learning outcomes, complexity of tasks and the extent of the learners' autonomy, represents acquisition of each competence as an ascent through the eight levels of

development. But this approach would not work for the ESP classroom because completion of the cognitively-challenging language tasks does not necessarily involve highly developed digital skills, whereas solution of cognitively-undemanding problems may sometimes require use of sophisticated software tools. Moreover, 168 competence descriptors for 8 levels and 21 learning outcomes are too detailed and confusing for an ESP teacher in terms of their practical application.

The central tenet of Bloom's taxonomy for learning, teaching and assessing [27] is that the teaching is an intentional and reasoned act. The reasoned aspect of teaching is linked to what objectives teachers select for their students as a result of their needs analysis and learning context. The intentional element relates to how teachers help students achieve these objectives through creating relevant learning environments as well as giving appropriate tasks and experiences [27, p. 3-6]. Intentional integration of digital literacies into ESP learning implies that technological affordances should therefore be directed towards reaching these learning goals. Building on the instructional design theory, this study concerns itself with *design* that should be understood as "means to attain given goals for learning or development" [24, p. 6]. If we consider digital tools and skills to be these means, the main problem that arises is how to use these techniques to achieve desired outcomes.

The probable solution is to understand the nature of digital literacies and therefore their compatibility with the main components of professional intercultural communicative competence. The eight essential elements approach to digital literacies, proposed by D. Belshaw [26], is notable for its emphasis on the way how they should be used. The development of digital skills, attitudes and aptitudes lies within the eight areas as follows: *cultural* (relates to understanding of context, i.e. issues, norms and habits of mind behind technologies, and best acquired through the immersion in a range of digital environments); *cognitive* (relies on branching logic and cannot be learned sequentially); *constructive* (enables constructive social action, including reproducing someone else's work); *communicative* (paves the way for the effective technology mediated communication and is inseparable from the constructive and cultural elements); *confident* (involves problem solving and managing one's own learning); *creative* (focuses on adding value in a given context); *critical* (reveals power structures and assumptions behind multimodal texts and is close to the concept of media literacy) and *civic* (refers to self-organizing in the digital environment) [26, p. 43-58]. An important observation in this regard is that some of these elements may need to be privileged above others in different contexts.

The defined aspects facilitate introduction of digital literacies into the ESP classroom because they give the possibility to employ the revised taxonomy by placing these characteristics within the knowledge dimension and assign the role for them to enhance the six cognitive processes, according to the Taxonomy Table [27, p. 28]. This understanding also enables us to respond to the three of the organizing questions [27, p. 6] and decide what content to teach, how to design instructions and still be sure that our objectives and instructions are aligned to each other.

The application of a standard formula for stating educational and instructional objectives where a verb stands for the cognitive process (*Remember, Understand, Apply, Analyze, Evaluate, Create*) and a noun indicates the type of knowledge (*Factual, Conceptual, Procedural, Metacognitive*) [27, p. 23] makes it possible to move along the cognitive dimension, making suggestions on the ways to integrate new literacies into ESP curriculum. Traditionally, the first three categories of the cognitive process dimension, *Remember, Understand* and *Apply*, are most commonly found in objectives [27, p. 30]

For example, if we want our students to memorize new terms related to a specific field, the verb will fall within the first category of the cognitive process dimension, *Remember*. Remembering in this case involves *Factual knowledge of terminology*. Giving students an instruction to organize new vocabulary into the Mind Maps by means of designated software, we expand the scope of knowledge involved. Firstly, arrangement of the new items branching out from the central concept requires the *knowledge of classifications and categories, principles and generalizations, theories, models and structure*s, which belongs to the area of *Conceptual knowledge* [27, p. 29]. Secondly, using such ICT tools as MS Office and more advanced online mind mapping applications like Mindmup (https://www.mindmup.com/) or iMindQ (https://www.imindq.com/), students acquire *Procedural knowledge* of techniques, methods and algorithms needed to produce their own visual diagrams. More sophisticated software like MindMeister (https://www.mindmeister.com/) allows us to exploit the *communicative element* of digital literacies by providing opportunities to brainstorm and collaborate in real time, which makes doing group exercises more efficient and fun. The development of the *confident element* is also in the focus because learners' confidence grows as a result of their increasing expertise in image editing, exporting mind maps to other file formats, storing and categorizing, publishing on a website and so on. But equally important is a transferrable nature of skills and abilities that students develop. Technology assisted mind mapping strategies can be applied in professional activities to brainstorm ideas, manage projects, enhance meetings and presentations. In an academic setting intellectual maps could be of substantial use for reading comprehension and summarizing texts as well as brainstorming ideas for an essay or developing its structure. Thus, involvement of this strategic knowledge brings the fourth and last type of *knowledge – Metacognitive -* into the picture.

The following example of two interrelated learning activities engages the categories of *Understand* and *Apply* that lie further on the cognitive dimension axis. The first activity aims to boost reading comprehension skills of economics students. The assigned article "Who earns the most in the UK?" from Issue 161 of the *Hot English Magazine* contains the range of salary figures for different jobs in Great Britain. To make sure that students understand how this data, i.e. *Factual knowledge*, contribute to the main idea of the text, they are asked to represent it graphically in a bar-graph or a pie-chart. This instruction comes from understanding of how *creative element* of digital literacies adds value through the transformation of task design [26, p. 54]. Being free to choose any data visualization software they are familiar with or able to master in a short period of time, students immerse themselves in the cognitive processes of *interpreting*, *classifying, comparing* and *explaining* information which fall into the *Understand* category [27, p. 31]. The results of students' work can be seen in Figure 1.
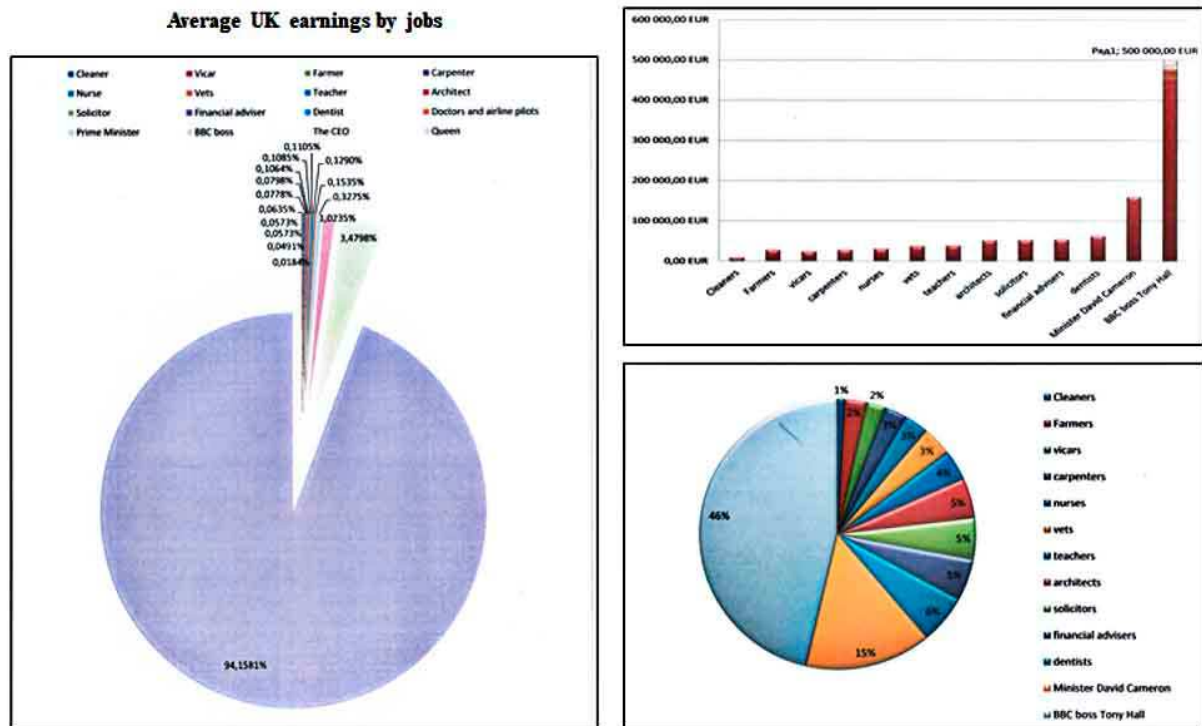
Figure 1. Students' visual representations of data and information from the text

The extension of this task makes it possible to *Apply* acquired skills and strategies and therefore move to the next cognitive process category. Now students are asked to find out about payment trends   in Ukraine and create a graph to demonstrate interrelations and patterns between data points (Figure 2). These activities clearly demonstrate the potential of the *cultural element* of digital literacies for exploring cross-national differences and similarities in income distribution. Importantly, giving future economists opportunities to create and interpret graphs is in line with their target needs and provides a meaningful learning experience.
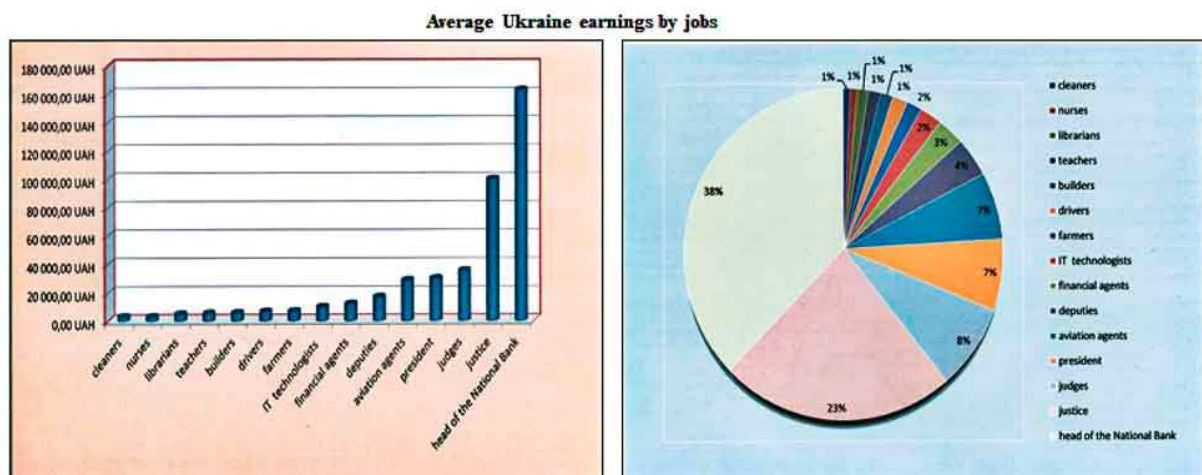
Figure 2. Students' visual representations of the results of their own research

The next three levels of Bloom's taxonomy, *Analyze, Evaluate* and *Create*, tend to be overlooked in educational objectives but may benefit the most from the embedment of digital literacies. The challenge is that to teach students, for instance, to *Analyze* means to make sure that instructional activities evoke complex cognitive processes [27, p. 106]. Thus, realizing necessity for journalism students to develop a complex approach to modern texts which contain a variety of modes, an ESP practitioner needs to provide explicit instruction to fill in gaps in learners' prior knowledge and support multimodal literacy. Teaching multimodal analysis is a complicated task that can be facilitated by being broken into components and "made visible to students" [21, p. 70]. The template in Figure 3 is developed using the Cognitive Academic Language Learning Approach (CALLA) (A.U. Chamot, J. M. O'Malley, J. Robbins) that promotes development of language learning strategies with the help of task-based activities, visualizing techniques and various graphic organizers. Based on the discourse analysis of advertising [28], this visual aid gives a profound theoretical background in a condensed form along with guidance on how to make meaning of multimodal genres.

Multimodal Text Analysis Guide	
Multimodal Text	
Text	Context
Prosody Use of prosodic patterning like poems, borrowed poems, alliteration, parallelism	**Substance** The physical material which carries or relays text
Figures of speech Rhetorical devices that achieve a special effect by using words in distinctive ways, e.g. assonance, metaphor, irony, personification, etc.	**Paralanguage** gestures, facial expressions, eye contact, body position, choice of typeface and letter sizes (in writing)
Connectivity Cohesive devices (repetition, sense relation, referring expression, ellipsis, conjunctions), the use of pronouns 'I', 'you' and 'we'	**Situation** The properties and relations of objects and people in the vicinity of the text as perceived by the participants
Intertextuality Intra-generic (containing the voice of another example of the same genre, e.g. when an ad assumes knowledge of another text) Inter-generic (containing the voice of a different genre, when a text evokes knowledge of a film, story, song, painting, etc.)	**Intertext** Text which the participants perceive as belonging to other discourse, but which they associate with the text under consideration, and which affects their interpretation
Narrative techniques Dialogization, ellipsis, deictics, non-fluency features (hesitations, fillers, false starts), interaction markers (encouraging noises, monitoring expressions)	**Participants** Their intentions and interpretations, knowledge and beliefs, attitudes and feelings. Each participant is simultaneously a part of the context and an observer of it (sender and receiver, addresser and addressee)
	Function What the text is intended to do by the senders and addressers, or perceived to do by the receivers or addressees

Figure 3. Multimodal text analysis template

Equally important, this template proves to be useful in placing our objective in the taxonomy. As shown in Figure 4, it helps us to discover what the objective requires cognitively (*analyze* by *differentiating*, *organizing* and *attributing*) and knowledge-wise (*conceptual knowledge* of *classifications and categories*, *principles and generalizations*, *theories, model and structures*). Moreover, the design which provides for the involvement of complex cognitive processes contributes to the realization of such important goals of instruction as transfer and retention [27, p. 232]. The cognitive processes of analysis modeled by separating layers of multimodal texts and establishing relations between them transfer to other contexts. This approach can be subsequently applied to the variety of digital genres to show how they rely not only on the potential of technology, but also the conventions of the preceding genres that have converged into the new modes of expression [25, p. 353]. In addition, these processes, once developed, are retained in memory for rather long periods of time [27, p. 232].
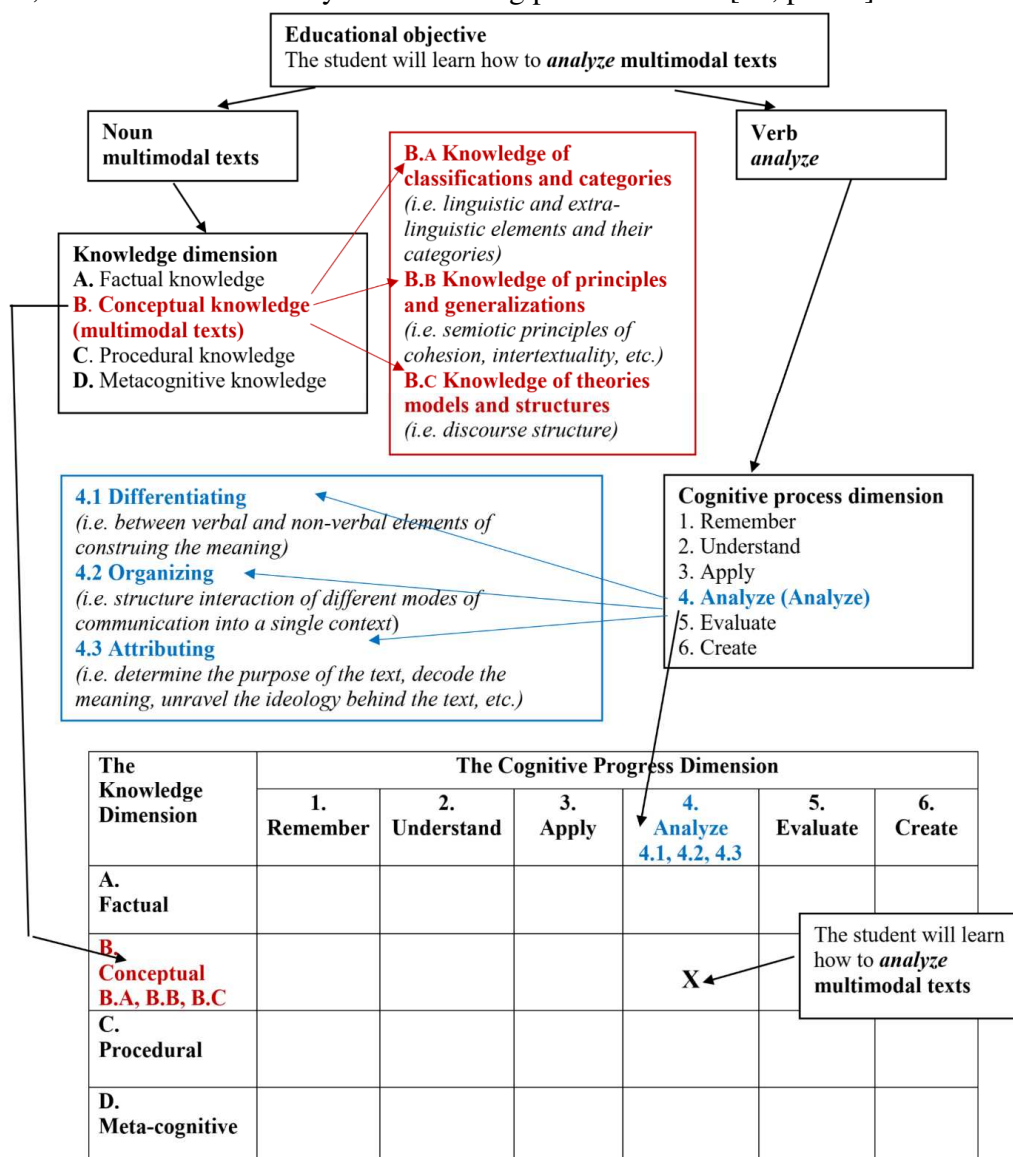
Figure 4. How the objective is classified in the Taxonomy Table

The result of a student's analysis (Figure 5) evidences that decoding of the text requires to adopt the critical perspective, most pronounced in the section **Function**. The *critical element* of digital literacies is crucial for developing processes in the cognitive category *Evaluate*. Once instructed to evaluate a multimodal text, students engage themselves in *checking* effectiveness of the images, language and sound in conveying meaning. They also try to *detect* ideological slant that might influence the nature of the information in the text and reveal cultural stereotypes. On the whole, *making judgement* depends on the ability to make decision about the quality of the digital content, its imagery, presence of political or corporate bias. All these abilities fall into the realm of media literacy, which is widely accepted as an essential component of the digital competence [4], [29]. A useful strategy that can help students evaluate texts is to apply the Core Concepts and Key Questions of Media Literacy framework (B. Duncan, L. Masterman, J. Pungente). Critical thinking development is in the heart of media literacy but there is another key aim that is to be innovative and creative. Supporters of the Critical Media Literacy Pedagogy approach (P. Carlson, A. Garcia, H. Onkovych, J. Share) advance the focus on the creation of learners' own digital content. This creative potential of technology brings us to the most complex process category of Bloom's taxonomy.

Figure 5. A student's analysis of a multimodal text

Completion of the task to *Create* a multimodal text involves aspects of each of the earlier cognitive processes as learners have to *Remember* a range of verbal and extra verbal devices and *Understand* how to combine them in accordance with a particular genre within the limits of a chosen medium. They also have to *Apply* the same strategies they used to *Analyze* and unravel the meaning of the texts to wrap up their own messages. Moreover, an affordance *analysis* is needed to make sure that *application* of the chosen ICT tool matches the task and advances its realization. After *generating* a concept, *planning* the stages of its implementation and finally

producing a text, there will be a need to *Evaluate* self-produced content in terms of its quality and efficiency.   Thus, a complex and generalized category of *Create* is taught by incorporating into students' *Metacognitive knowledge,* which is thought to be more strategic than the other types of knowledge [27, p. 235]. At this stage, analytic and evaluative strategies acquired in the course of previous assignments are complemented by the creative ones. *Creative element* of digital literacies is actualized through providing learners a certain level of freedom [26, p. 54] (in the choice of ideas as well as means of their expression), which allows them to synthesize their learning experiences. Creativity in the digitally enhanced ESP classroom, however, should be differentiated from originality or uniqueness. What is more important is that students produce "their own synthesis of information" [27, p. 85]. Creativity in this context is akin to the *constructive element* of digital literacies that involves "knowing how and for what purposes content can be appropriated, reused and remixed" [26, p. 49]. The series of a student's ads (Figure 6) is a good illustration of the pivotal for digital literacies idea of "remix" [26] (of genres, styles, representational modes) that utilizes all the types of knowledge gained through the complex cognitive processes.

Figure 6. A student's ads

Similar instructional path from the analysis of the constituent elements of a magazine cover, then through the evaluation of the techniques used in magazine covers of different categories, and, finally, to the creation of students' own items (Figure 7) can be taken to make use of more complex cognitive categories of *Analyze*, *Evaluate* and *Create*. More sophisticated tools of a website builder are used by students for creating a film review (http://project199391.tilda.ws/filmreview) and a blog entry (http://project1313684.tilda.ws/whoarethey2019).

Figure 7. Students' magazine covers

These examples prove that embracing a multi-faceted nature of digital literacies empowers language professionals to achieve higher-order educational objectives by creating a stimulating learning environment. However, meaningful integration of ICT in ESP requires from practitioners a very clear understanding of the level of their own digital capacity. Teachers could benefit greatly from identifying their "educator-specific" digital skills by referring to the European Framework for the Digital Competence of Educators (DigCompEdu) [30]. The proposed model, like the Common European Framework of Reference for Languages (CEFR), contains a set of proficiency levels ranging from A1 to C2. There are descriptors of the 22 elementary competences in the six main areas intended to help educators to understand their strength and weaknesses. Using the role descriptors, we found ourselves at Integrator (B1) level in Area 2 (Digital Resources), Area 3 (Teaching and Learning), Area 5 (Empowering Learners) and Area 6 (Facilitating Learners Digital Competence). This level of proficiency in the established areas enables to 1) select, adapt and create digital resources to align with learning objectives and design learning activities to achieve these objectives (Area 2) [30, p. 45-47]; 2) manage integration of digital devices and digital content into the teaching and learning process (Area 3) [30, p. 53]; 3) envisage individualized learning pathways and design the resources so as to actively involve all learners (Area 5) [30, p. 73-75; 4) implement activities with the use of digital technologies to produce digital content (texts, images, videos) (Area 6) [30, p. 83], as confirmed in this study. By using this self-evaluation tool, ESP practitioners receive a powerful stimulus to make a maximum use of their current ICT skills in the classroom and work towards their further development.

4. CONCLUSIONS AND PROSPECTS FOR FURTHER RESEARCH

The Council of Europe through the number of policy initiatives aspires to create a digital society where higher education has been given a considerable role in preparing citizens for life in the information society. However, it is not just a matter of developing students' relevant skills; it is also a matter of educators' own digital literacy.

Nowadays, all education practitioners feel the need to adapt to the digital age but ESP teachers find themselves in an extremely challenging situation due to such concurrent education

trends as promotion of multilingualism, introduction of EMI courses and the resulting shift towards CLIL/ICHLE. As a result, ESP has become open for fresh approaches and technological innovations. Technology in the ESP context should be considered to be the most powerful means to empower learners and develop interdisciplinary competences.

The potential of ICT for ESP learning is enormous, since it involves the most complex cognitive processes underpinned by multiple types of knowledge. Understanding of the role that various aspects of digital literacies can play in the development of professional intercultural communicative competence is a precondition for their meaningful integration into ESP practices. To do it successfully, it would be advisable for ESP teachers to follow Bloom's Revised Taxonomy guidelines to formulate educational objectives and think of proper instructional strategies. Self-awareness is also the key to educators being able to identify their own digital skills training needs.

Promising directions for further research lie in the development of technology enhanced ESP courses for a wider range of specialties and designing effective programmes to train digitally competent ESP practitioners.

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ВИКОРИСТАННЯ ОНОВЛЕНОЇ ТАКСОНОМІЇ БЛУМА ДЛЯ ФОРМУВАННЯ ЦИФРОВОЇ ГРАМОТНОСТІ В ПРОЦЕСІ НАВЧАННЯ АНГЛІЙСЬКОЇ МОВИ ПРОФЕСІЙНОГО СПРЯМУВАННЯ

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Анотація. У статті розглянуто особливості застосування інформаційно-комунікаційних технологій (ІКТ) у межах вивчення англійської мови професійного спрямування (АМПС). Зокрема обґрунтовано актуальність інтегрованого формування професійно орієнтованих цифрових і мовленнєвих знань, навичок і вмінь у контексті сучасних тенденцій розвитку європейського освітнього простору. Виокремлено основні проблеми, які постають перед викладачами АМПС за умов упровадження багатомовної освіти та практики викладання фахових дисциплін англійською мовою як складової українськомовної програми. Наголошено на ролі інновацій у розробці викладачами прогресивних методів навчання, спрямованих на адаптацію майбутніх фахівців до реалій сучасного інформаційного суспільства. Доведено, що для максимально ефективного застосування новітніх технологій під час вивчення АМПС важливо зосередитись на тих аспектах цифрових навичок і вмінь, які є спільними з традиційною грамотністю як здатністю використовувати мову. Результатом такого підходу є чітке усвідомлення викладачем доцільності інтегрування певних елементів цифрової грамотності до змісту навчання АМПС. Надано рекомендації щодо створення технологічно збагаченого навчального середовища у відповідності до основ педагогічного дизайну. Для перевірки узгодженості між обраними методами організації діяльності і цілями навчання, реалізація яких передбачає залучення когнітивних процесів різних рівнів, запропоновано використовувати оновлену таксономію Б. Блума. Окреслено можливості активізації вивчення АМПС засобами ІКТ, наведено приклади авторських розробок на основі технології скафолдінга для навчання стратегій аналізу мультимодальних текстів і критичного мислення. Практично доведено, що елементи цифрової грамотності не тільки гармонійно поєднується з компонентами міжкультурної комунікативної компетентності, але й виступають засобом активізації найскладніших когнітивних процесів концептуального аналізу, критичного мислення, прийняття рішень, творчості та метакогніції.

Ключові слова: англійська мова професійного спрямування; цифрова грамотність; таксономія освітніх цілей Б. Блума.

ИСПОЛЬЗОВАНИЕ ОБНОВЛЕННОЙ ТАКСОНОМИИ БЛУМА ДЛЯ ФОРМИРОВАНИЯ ЦИФРОВОЙ ГРАМОТНОСТИ В ПРОЦЕССЕ ОБУЧЕНИЯ АНГЛИЙСКОМУ ЯЗЫКУ ПРОФЕССИОНАЛЬНОЙ НАПРАВЛЕННОСТИ

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Аннотация. В статье рассматриваются особенности использования информационно-коммуникационных технологий (ИКТ) в рамках изучения английского языка профессиональной направленности (АЯПН). В частности, обосновывается актуальность интегрированного формирования профессионально ориентированных цифровых и речевых знаний, навыков и

умений в контексте современных тенденций развития европейского образовательного пространства. Выделяются основные проблемы, стоящие перед преподавателями АЯПН в условиях внедрения многоязыкового образования и практики преподавания специальных дисциплин на английском языке как составляющей украиноязычной программы. Подчеркивается роль инноваций в разработке преподавателями прогрессивных методов обучения, направленных на адаптацию будущих специалистов к реалиям современного информационного общества. Доказывается, что для максимально эффективного применения новейших технологий при изучении АЯПН необходимо сосредоточить внимание на тех аспектах цифровых умений, которые являются общими с традиционной грамотностью, понимаемой как способность использовать язык. Результатом такого подхода является четкое осознание преподавателями целесообразности интегрирования определенных элементов цифровой грамотности в содержание обучения АЯПН. Предоставляются рекомендации относительно создания технологически обогащенной учебной среды в соответствии с основами педагогического дизайна. Для проверки соответствия между выбранными методами организации учебной деятельности и целями обучения, реализация которых предусматривает вовлечение когнитивных процессов разных уровней, предлагается использовать обновленную таксономию Б. Блума. В статье также очерчиваются возможности активизации изучения АЯПН методами ИКТ, приводятся примеры авторских разработок на основе технологии скаффолдинга для обучения стратегиям анализа мультимодальных тестов и критического мышления. Практически доказывается, что элементы цифровой грамотности не только гармонично комбинируются с компонентами межкультурной коммуникативной компетентности, но и служат средством активизации самых сложных когнитивных процессов концептуального анализа, критического мышления, принятия решений и метакогниции.

Ключевые слова: английский язык профессиональной направленности; цифровая грамотность; таксономия образовательных целей Б. Блума.