Marta Gluchmanová
PhD of Philological Sciences, Assistant Professor of the Department of Natural Sciences & Humanities
Technical University of Košice, Faculty of Manufacturing Technologies in Prešov, Slovakia
ORCID ID 0000-0003-0945-1740
marta.gluchmanova@tuke.sk

ONLINE LANGUAGE TEACHING AND EVALUATION OF ENGINEERING STUDENTS

Abstract. The research aimed to point out the effective use of ICT in foreign language teaching and learning by engineers. The problem with the evaluation of students during their studies or at the end of the academic year arose when the Technical University of Košice was forced to switch to a distance form of education. The experiment took place in the winter semester of 2021/2022 within the compulsory English Language in Technical Practice course. Mixed methods were used to compare the results of e-tests within the four study programmes - Automotive Production Technologies, Computer-Aided Manufacturing Technologies, Industrial Management and Intelligent Technologies in Industry. The research employed both qualitative and quantitative approaches. The research design involved collecting data using online tests completed by students and sent to the teacher. A quantitative method was conducted to evaluate the students' online tests. The qualitative research method allowed for the analysis and interpretation of data from the experimental testing. Based on the results of the study, it was concluded that different types of Moodle tasks can be successfully applied to e-testing as part of English course assessment at the university level. The study aimed to determine the level of language skills of the 80 first-year engineering students at the Faculty of Manufacturing Technologies in Prešov Technical University of Košice who participated in the experiment. The university-wide learning management system, the Moodle platform, was used during the study and in the final online tests. The results of the e-tests revealed the level of language skills, and teachers were able to identify the weaknesses and strengths in teaching professional study material. The hypothesis concerning language skills was confirmed. The best evaluation was achieved by 43 students (53.8%) in reading professional texts with understanding, and only 21 students (26.3%) were successful in grammar. It was emphasized that reading comprehension is an integral and inseparable part of the teaching process at the Technical University. The correct understanding of the professional text has a huge benefit and significance in their practice and future professions.

Keywords: online education; language skills; evaluation; manufacturing technologies; teaching; e-tests.

1. INTRODUCTION

The problem statement. Universities should prepare their students not only in theory. Students should also be ready to practice in foreign companies. Information and communication technologies (ICT) currently play an important role at all levels of education. The paper is focused on learning tools in language teaching at technical universities. Foreign language teaching plays an important role in preparing students for future careers. New technologies are a great asset for foreign language teaching today. It is true that technology is constantly changing and evolving. It plays a significant role in teaching and learning foreign languages. New technologies are useful for different study programmes at many Slovak universities when teachers and students feel the absence of professional study material. ICTs are very helpful for teachers and students in searching for available professional study material. Due to this situation, there is a constant need to monitor professional foreign language texts and change them or add content to them according to the needs and requirements of the course and study branches of students. They must acquire new vocabulary as well as work with professional terminology, which is necessary for their field of study and practice.

© Marta Gluchmanová, 2022.

As part of foreign language teaching innovation at the Faculty of Manufacturing Technologies Prešov Technical University of Košice, teachers tried to provide students with up-to-date, new, and interesting professional foreign language texts for each lesson, related to a certain professional topic. It motivates them to read or search for additional texts or articles devoted to the professional topic, which helps students to improve their professional vocabulary in a foreign language. Currently, testing, especially in times of pandemic, is taking on a wider dimension and needs to be approached with greater emphasis, both by educators and students.

Analysis of recent studies and publications. Online education has become a very attractive way of teaching, especially after various restrictive measures and lockdowns. ICT has an impact on students' thinking and education. Including the Internet in teaching means the quality and purposeful involvement of students in the world of communication. Many articles point out the penetration of internet technologies into the educational process. Today, online education is considered a modern and effective tool for increasing the competitiveness of universities. It is an example of modernization, which thanks to the Internet covers broad sections of society and is becoming an important factor in its development. New technologies satisfy the needs and interests of education. Oleksiienko et al. [1, p. 62] emphasized that the development of information technology has made it more urgent to modernize the education system. According to them, the theoretical interest in online education first arose in the context of studying the experience of distance education and the desire to understand its capabilities in connection with the use of new ICT in the educational process. It is argued that technology should be used to gain knowledge by students. Replacing classic aids with real objects placed on the Internet facilitates many activities for the teacher and gives the student, the future engineer, a clear, interesting, and often effective view of the discussed problem.

In our opinion, mobile-assisted language learning provides access to authentic learning but also offers scope for informal learning beyond the classroom. Akkara et al. [2] claimed that social media with messaging and multimodal communication and information sharing provide platforms for interaction with peers. The role of informal digital learning in English has been shown by many authors [3], [4], [5]. Students as part of the information society are beneficial in providing more effective and transparent information within individual disciplines. Huzairin et al. [6] argue that learning via mobile devices is not without restrictions but has several advantages and is much cheaper than learning via computers. I must agree with the authors because almost all students own mobile devices. They have access to their mobile devices from anywhere and anytime. Many findings highlight the need to examine students' digital practices, such as video streaming. According to Dizon [7], this fact aimed to bridge the gap between nonformal and informal language learning in the classroom. Smartphones are used for ~~the~~ online informal learning of English among undergraduate students. Young people use their smartphones more frequently to engage in English listening and speaking activities than reading and writing activities. Tiron et al. [8] claimed that reading is a critical skill that all students need to acquire and leads to educational and professional success. Similarly, Motobayashi and Takahashi [9] examined changes in speakers' identities and in their attitudes toward speaking English. At the same time, students should improve their reading techniques, find the necessary new information, and use appropriate arguments to support their opinions. It is noted that students at technical universities have a positive perception of mobile assistance in language education, therefore they effectively use mobile devices to improve their language skills.

Zarić and Nagler [10] stated that students should be able to search for specific necessary information in a text, as well as be able to deduce the meaning of unknown words from the context. They should also be motivated to feel the need to read and look for new information and then succeed in the final testing. In our opinion, motivational beliefs are important in the self-regulatory learning processes of students with different levels of English. Appropriately chosen student motivation guides student activities. The motivation for many was the awareness

that e-learning is becoming an increasingly common and popular option in education. Krepel and Sinclair [11] argued that students' motivation lies in their ability to combine language with their own interests. The availability of online resources in English means that today's informal contexts offer many opportunities for language development. Maphalala and Adigun [12] sought to examine academic experiences of using e-learning to support teaching and learning. On the other hand, the strengths and weaknesses of e-learning were explored [13], [14], [15].

According to Yurieva et al. [16], high-speed internet access and the availability of online tools allow students for whom English is not their mother tongue to be increasingly exposed to authentic English. I fully agree with the statement of the mentioned authors. My students are not native speakers. However, they can improve their English using available online tools. The effectiveness of communication techniques in education programmes was investigated by Khateeb et al. [17]. They paid attention to the impact of their effects on students' learning outcomes. It is noted that this is very important for students at technical universities, future engineers. Bozdogan and Kasap [18] pointed out that engineering graduates face technical writing and communication problems during and after their studies. They emphasized that professional life requires language skills in at least one foreign language and effective communication and team skills.

Professional foreign language teaching requires more demanding training on the part of the teacher, especially if a suitable textbook is not available and the teacher has to choose an interesting supplementary text or study material [19], [20]. The needs of students and graduates for their future job must be considered [21], [22]. Foreign language study material must be properly taught, which will enable students to improve their language skills [23]. This creates a new task for the teacher, which consists of updating professional foreign language topics, which will be the content of seminars and exercises during the academic year. Foreign language teachers at the Department of Social Sciences and Humanities have decided to prepare suitable online professional study materials for students in the engineering study programmes as part of the ongoing project *Innovative methods and forms of education for the needs and development of language communication skills within the technical professional foreign language study material*.

The research goal. The study aims to determine the level of language skills of first-year engineering students at the Faculty of Manufacturing Technologies using the Moodle platform. E-tests are a summary of knowledge from professional study material for individual study programmes in the winter semester of 2021. E-exercises are designed to include the following language skills: reading comprehension, listening, writing, and grammar. At the same time, the teacher can identify strengths and weaknesses within the language competences. These findings will be very useful for teachers in selecting more appropriate professional foreign language study material. It is hypothesized that the level of language competences in e-tests will be different. It is stated that e-exercises focused on correct spelling and grammar will be the most problematic for Slovak students. It is related to the grammar, pronunciation, and spelling of the Slovak and English languages.

2. RESEARCH METHODS

Quantitative and qualitative data were obtained from selected e-tests performed by engineering students of manufacturing technologies. Mixed methods were used to meet the stated goal of our study. The evaluation and analysis of the identified e-tests as well as their feedback provided sufficient data needed to compare the results within the four study programmes at the Faculty – Automotive Production Technologies, Computer-Aided Manufacturing Technologies, Industrial Management and Intelligent Technologies in Industry. To achieve the goal of the research, we used a quantitative research method, which involved

collecting data through online tests completed by students and sent to the teacher. The analysis was performed using the Moodle platform, which made it possible to summarize and interpret the data obtained. Qualitative data were obtained through the analysis of information on individual e-test feedback, which allowed researchers to compare and evaluate students' responses.

Participants

The experiment took place at the Technical University in Košice. At the Faculty of Manufacturing Technologies in Prešov, 80 students of production technologies from various study programmes were included in the testing. The research took place in the winter semester (WS) of 2021 within the compulsory English Language in Technical Practice (ELiTP) course. The testing took place through e-tests prepared by two foreign language teachers from the Department of Natural Sciences and Humanities. The tests included the following language competencies: reading, listening, writing including grammar.

Instruments and Procedure

After three years of a successful bachelor's degree, students can continue for two years at the engineering level of their study. English Language in Technical Practice is one of the compulsory courses during the two semesters of this study. Foreign language teaching at the Faculty of Manufacturing Technologies cooperates with the teaching of professional subjects in individual study programmes. This is also one of the reasons why foreign language teachers must cooperate with teachers of professional courses to be able to select appropriate foreign language texts or professional articles to suit individual topics. Then, the selected texts as study material must be modified and didacticized in such a way that they meet the requirements for improving all language skills. It is no less important to determine the level of foreign professional language. Teachers must consider the difficulty of individual tasks in exercises.

The choice of suitable texts also depends on the extent to which a professional text encourages further development of the topic. In the introduction, there is an exercise with reading comprehension tasks. This is followed by a section devoted to professional lexicology, and, if necessary, grammar. Teachers try to involve students in the discussion as well. There are also listening exercises, which are supplemented by questions. In some exercises students also practice professional lexicology in the written form.

Reading comprehension has a primary role in professional foreign language lessons in each year of study. To practice understanding the issue of Internet suffixes, I present an example (Figure 1) of the listening exercise prepared for students.

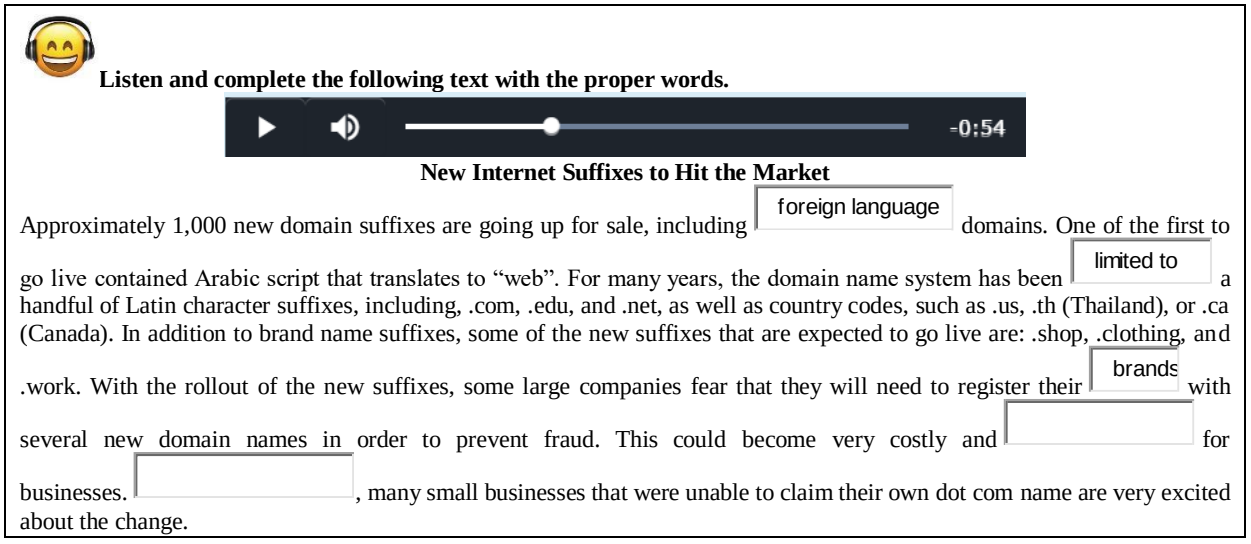

Figure 1. Sample of listening exercise

In the following test task, students read the professional text with understanding. The task is incorporated into the Moodle system on the faculty website EnGeRu. Students either have the missing words (Figure 2) at their disposal and write them in empty boxes, or they can scroll them out of the menu and put them in the right place so that the sentences and the whole text make sense.

Read the text & complete the sentences with the suitable words: aims, ~~are added~~, ~~are rolled~~, ~~assembly~~, certain, ~~different~~, efficiently, eliminate, fix, increasing, in, it, ~~just~~, needed, of, off, ~~streamlined~~, that, the, ~~track~~

Visit any car manufacturing facility, and you will see a very ___ *streamlined* ___[1] process taking place. You will see an ___ *assembly* ___[2] line of mostly robots putting the cars together piece by piece. The cars __ *are rolled* ____[3] along a track where pieces __ *are added* ____[4] to it. Each robot has ___ *just* ___[5] one task. Each robot adds a ___ *different* ___[6] piece to the car. At the end of the ___ track ___[7], we see a finished car ready to drive _____[8]. This is an example of lean production, a manufacturing method that _____[9] to reduce waste. When you _____[10] waste or anything else that costs unnecessary money, you will be _____[11] the profits of your company. Some of _____[12] major car companies out there today are still _____[13] operations because they created a lean production method _____[14] works for them. One _____[15] the benefits of lean production is that _____[16] is flexible. It allows a manufacturing company to change as _____[17]. For example, if a _____[18] way of doing things is not working as well as it could, then the company can make changes to _____[19] the issues. The way the company operates is constantly reviewed to see if it can operate more _____[20].

Figure 2. Example of a closed assignment task

The following example is for an open task (Figure 3). Students must fill in missing words. Students can work up such a task only after studying the topic of Advanced manufacturing technologies.

Complete the sentences with the correct words.

1. Advance machining processes are also called non-traditional or unconventional.
2. Electrical Discharge Machining is a controlled metal-removal process that is used to remove metal by means of electric spark erosion.
3. Waterjet technology is a cold cutting process which cuts by using supersonic water, or water and _____.
4. The electrons in the atoms of the plasma separate from their nuclei.
5. The function of the plasma torch is to provide proper alignment and cooling of the consumables.
6. The ASC circuit produces an AC _____ of approximately 5,000 V.

Figure 3. Demonstration of open tasks

Within professional foreign language study material, it is possible to practice and verify the knowledge of grammar, specifically the correct use of present simple and present passive in the text (Figure 4) concerning laser cutting machines.

Write the verbs in brackets in the correct form: Present Simple or Present Passive.

Laser cutting/etching machines are quite simple in the way they work. The lens system that (control) controls the position of the laser is itself moved by a motorised slide control system. This (allow) allows movement in any direction. The control system (move) moves according to the programme being used by the machine. The work/material being engraved or cut by the laser (hold) is held firmly in position on a vacuum bed. The laser (deflect) is deflected from it source within the machine through a series of precision lenses/mirrors and focussed accurately on the area to be cut/etched. The laser (remove) removes small dots of material, up to 1200 dots per inch. This (mean) means that it is able to cut extremely

accurate shapes and (produce) _____ astonishingly detailed etchings. The laser cutter is similar to an ink jet printer. The printer (spray) _____ ink onto the paper in a series of dots that make up a picture or text. The laser cutter removes material in a series of dots producing pictures / etchings and shapes (cut) _____ away from the surface of the material.

Figure 4. Sample of grammar test within professional study material

The study material for all faculty students, e-exercises, and e-tests is located on the faculty portal EnGeRu for Technicians (Figure 5) and uses the university-wide Moodle platform.

Figure 5. EnGeRu website example

The analysis of experimental research data for the quantitative and qualitative analysis was based mainly on statistical and mathematical methods. In addition, the teacher noticed the common mistakes that students make in e-tests. The data for individual tasks in the final e-test were evaluated in the Moodle system at the end of the winter semester of 2021. The tasks were focused on Computers - CIM, CAD, CAM, CNC, CAD/CAM software; Internet - social networking, the www; Traditional & Advanced manufacturing processes; Automotive industry & engines. The results and grades were separately summarized for individual study programmes from 80 students in the 1st year of engineering studies for the winter semester of 2021.

3. RESULTS AND DISCUSSION

In preparing English language e-exercises and e-tests, foreign language teachers of the Department of Natural Sciences and Humanities tried to focus on modern didactic principles and e-test evaluation criteria, which are validity and reliability. The LMS Moodle meets these criteria. Thus, e-exercises, as well as e-tests, were created to check the studied lexical and grammatical material, examples of which are given above. Eighty students of the engineering study level at the Faculty of Manufacturing Technologies were included in e-exercises during the winter semester and the final e-test at the end of the course in the winter semester of 2021. The experimental group involved in e-exercises and the final e-test completed the following study programmes: Automotive Production Technologies (APT) – 20 students; Computer-

Aided Manufacturing Technologies (CAMT) – 20 students, Intelligent Technologies in Industry – 20 students and Industrial Management (IM) – 20 students. Depending on the focus of the e-exercises and e-test, the students' results were monitored. The European Credit Transfer System (ECTS) for evaluation is used at the faculty.

For each selected professional topic, mostly with a focus on manufacturing technologies, online tests were created to practice the topic covered, which corresponds to the professional subject of the study programme. New foreign language study materials were created across all study programmes in the mentioned fields of manufacturing technologies. The innovation of methods and forms of education in the creation of teaching material was, therefore, the most important for the selection of appropriate texts for reading and tasks dedicated to understanding the text read, which is the basis of each topic and lesson. To a certain extent, it is a test of their knowledge and whether they have been able to remember all the essentials. After filling in the missing words and sending the results, the self-test will be used to determine the results immediately, i.e., whether students' answers are correct. Feedback is also used. In the case of incorrect answers, the system can generate the correct answer for students.

The assessment of each language skill included in the e-tests is shown in Table 1. Even though students do not like to read, we see that 43 students (53.8%) received the best evaluation in reading. No FX was noted in the reading comprehension of the professional English text. Reading comprehension has a primary role in professional foreign language lessons in each year of study. Particularly excellent results in this language skill may be related to the fact that students at this stage of their studies are forced to read more, to search for sources of literature and useful information for their diploma thesis. To some extent, this is also thanks to the supervisors of their diploma theses, who will recommend foreign literature and scientific journals related to the topic.

Table 1

Students' evaluation of the language skills within the e-test in Moodle

	A (100-91%)	B (90-81%)	C (80-71%)	D (70-61%)	E (60-51%)	FX (50-0%)
Listening	32 40%	21 26.3%	14 17.5%	6 7.5	5 6.2%	2 2.5%
Reading	43 53.8%	23 28.7%	8 10%	2 2.5%	4 5%	0 0%
Writing	31 38.8%	18 22.5%	10 12.5%	12 14.9%	6 7.5%	3 3.8%
Grammar	21 26.3%	16 20%	19 23.7%	10 12.5%	7 8.8%	7 8.8%

The content of listening corresponds to the target requirements of the curriculum within the given field. Based on listening, students then enter the missing expressions into the text so that the content and the entire test task are valid. Listening was the second language skill in which 32 students (40%) demonstrated their ability to understand the professional text. Students are young people who use smartphones and I-phones daily to listen mainly to foreign music. This is also helpful, but it is different from listening to professional texts. Teachers apply listening in seminars by watching YouTube or something similar. Students can see the visual material and technical terms which are very helpful for understanding the professional text. Nevertheless, 2 students (2.5%) were not successful in this language skill.

Writing is very closely related to reading and listening. After reading the professional text and listening to the professional recording, each student must write the correct professional term in the task, as shown in the examples of exercises. There were 31 successful students (38.8%) in the research sample of students. The mistakes that students make in writing are more

or less related to their inattention when trying to write a word quickly, whereas students are limited in time in the final e-test. Additionally, 3 students (3.8%) were unsuccessful in writing.

Students practice grammar, nouns, adjectives, and other word types, their position in the sentence, and their overall understanding of the professional text. English grammar is different from Slovak, so students often have a problem in this part of e-tests. In one task students write verbs in parentheses in the appropriate grammatical tense so that the sentence and the whole text have meaning and purpose. In Slovak, verbs have only 3 grammatical tenses: present, past, and future. This is one of the reasons why students have trouble using the appropriate grammatical tense in English. The most common mistakes made by students in grammar exercises are shown in Table 2. Only 21 students (26.3%) received the best grade in grammar. FX was achieved by 7 students (8.8%).

Table 2

Frequent mistakes in grammar exercises.

Use the correct forms of the verbs from the infinitives in the brackets and complete the sentences.			
Today's headlights (to make)	are made	✔	of durable plastics.
Today's headlights (to make)	make	✖	of durable plastics.
The machine (to melt)	melts	✔	plastic pellets into a gooey liquid.
The machine (to melt)	melt	✖	plastic pellets into a gooey liquid.
A robot (to apply)	applies	✔	a sealant which prevents water, dust and insects from penetrating the housing.
A robot (to apply)	apply	✖	a sealant which prevents water, dust and insects from penetrating the housing.
Then they (to add)	add	✔	halogen bulbs for the turn signal and daytime running lights.
Then they (to add)	added	✖	halogen bulbs for the turn signal and daytime running lights.

It follows from the above that the newly created foreign language professional materials meet the vocabulary expertise, because students obtain more knowledge during classes and work smoothly with the study material. It all depends on correctly chosen professional foreign language texts for reading and obtaining new knowledge. From many years of experience, it has been convicted that in such professional texts students will be convinced how they understand the meanings of words, not only professional terminology but also the overall context. Working with the test, reading, and comprehension is considered very interesting and beneficial for students. This means that students evaluate the selected foreign language professional texts for reading positively and perceive their need and contribution within the teaching hours of a professional foreign language.

However, the primary goal of all texts, including professional foreign languages, intended for reading comprehension during professional foreign language classes for studying branches of manufacturing technologies is reading for obtaining information. This type of reading is very important for up-to-date searching for new information and is of great importance in the learning process. Reading comprehension tasks are devoted to both strategies for "speeding up" reading: skimming and scanning. The technique of scanning is the most often used for tasks that develop professional English vocabulary. These are the types of tasks in which the student is given the task of searching for specific words, synonyms, or phrases in the text.

In connection with the foreign language professional text work, it is stated that there are two main goals of reading: reading for obtaining information and reading for fun. Professional texts and reading comprehension tasks also help to identify the progress of an activity, find answers to how something works, provide a solution, and so on. It is said that authentic texts are very beneficial for students of technical specialization, such as manufacturing technologies.

When working with professional texts, teachers prefer reading, in which students pay more attention to professional texts to understand. Individual strategies alternate for individual types of tasks. In the new professional English study materials, we also tried to create more space for individual phases of working with the text, which was not used before. Teachers created tasks that support the phase before reading, during reading, and after reading a professional foreign language text. For each topic, teachers tried to vary the work with the text and create various exercises to understand the text. Before starting the reading, it is necessary to determine the students' knowledge of the given topic. After reading the text, it is necessary to return to the completed task. In the end, you can solve other tasks or start a discussion on the topic.

The results of the e-tests revealed the level of language skills. Teachers identified weaknesses and strengths of language competences in teaching professional English study material. The best results were achieved in reading a professional text with understanding, which is related to the student's interest in the issue of manufacturing technologies. The interest of engineering students in professional articles in scientific journals is also related to the study of professional literature needed to write and complete their diploma thesis. These findings were useful for teachers in selecting more appropriate professional foreign language study material. Based on the results of the e-tests, the hypothesis was confirmed that writing and grammar within the study of English professional study material were the most difficult for students of manufacturing technologies.

The final testing is the result of working with a professional foreign language text, as well as practicing other key competencies during the semester. However, creating e-tests is a lengthy process if we want to include everything that students have completed during the semester. I point out and illustrate the various possibilities of working with professional study material for students of the Faculty of Manufacturing Technologies in various fields of study and programmes during English language lessons. Creating tests and test tasks is a demanding process that takes several months or years [24], [25], [26]. Tests should not arise randomly as a result of chaotically collected test tasks into a test unit. The essence of creating a didactic test is to reformulate specific goals into tasks. The didactic test is a specially designed written exam, corresponding to precisely defined requirements. It is designed to determine the knowledge and results of learning activities and provides prerequisites for rapid quantitative and qualitative evaluation of students' learning outcomes. It is desirable for teachers to acquire skills in creating test tasks so that they will be prepared for a new method of assessment. Recently, the validity, reliability, sensitivity, objectivity, and applicability of the test have been profiled as the main attributes of didactic tests [27].

A test is valid if it determines real knowledge in the field it is testing, in our case in manufacturing technologies. Content validity in the e-test means the correlation of the tasks and test goals, correlation of the test and course objectives, and coverage of studied grammar and vocabulary material. Questions should not only include content. It must represent not only the quantitative aspect of the professional study material taught but also its importance. The reliability of a test is an indicator that reflects whether the teachers want to verify. It is measured by suitable means of manufacturing technologies to ensure its reliability. I note that the reliability in our case concerns the stability of the test results in manufacturing technologies. Reliability means that students achieve the same or similar results from professional study materials when tested repeatedly. Reliability is related to the student, the assessor, and the overall reliability of the test, correctness of evaluation, stylistic correctness, clarity, conciseness of tasks, and the correctness of the proposed answer options.

Sensitivity is important to determine differences in students' level of manufacturing technologies knowledge. It is characterized by the ability of the test to distinguish students with very good knowledge from students with little knowledge. In the didactic test, however, in our

opinion, it is not appropriate to use only tasks with high sensitivity but rather tasks of varying difficulty. If teachers want to motivate weaker students, they can sort the tasks according to sensitivity from tasks with lower sensitivity to tasks with a highly discriminatory task.

Objectivity is understood mainly as the absence of significant subjective influences on teachers during testing. However, it results from the preparation and creation of the test by a teacher, further from the conditions during the test, and finally from the other situations that may arise during the evaluation of the test. The usability of the test is meant quality processing, especially from the formal point of view. The higher the usability by manufacturing technologies students, the better the didactic test is processed. Applicability refers to its correction and evaluation. An important feature of every test and test task is the difficulty.

Prahani et al. [28] stress that innovation is much needed in the field of testing as well as education in general, especially innovative learning models that can be effective in improving students' skills. Finally, it is stated that today, online evaluation forms a real basis for further education in the near future. Internet resources provide educational information and educational services free of charge [29]. Changes in professional study materials are necessary for students to be able to improve their language skills. Therefore, it is argued that technology plays an important role and has a positive impact on education including online education.

The innovation of the presented study lies in the fact that the offered professional study material for students is the result of cooperation between foreign language teachers and experts in the study programmes at the faculty. Professional study material will be tailor-made for students within each study programme. Such study material is not offered to students by any professional publication. Students can thus improve their language skills better within their field, not only professionally but also linguistically.

4. CONCLUSIONS AND PROSPECTS FOR FURTHER RESEARCH

The results of the research showed the level of language competences of engineering students using LMS Moodle, within which it is possible to successfully apply e-testing as part of the evaluation of the course at the university level. Overall, students and teachers considered e-testing to be effective and relevant to the course objectives. A group of first-year engineering students (80 students) at the Faculty of Manufacturing Technologies (Technical University of Košice) were involved in the experiment. The research took place in the winter semester (WS) of 2021/2022 within the compulsory subject English Language in Technical Practice (ELiTP). The testing took place through e-tests prepared by two foreign language teachers from the Department of Social Sciences and Humanities. The tests included the following language competencies: reading, listening, writing including grammar.

The competence of reading skills significantly influences the application of graduates in future practice [30]. Therefore, the effort of teachers in professional foreign language classes is to devote as much time as possible to work with the text. At the university of technical specialization, teachers most often work with professional articles and texts describing work instructions, advice on how to solve a problem, or texts characterizing new phenomena and technologies. It is therefore in the interest of teachers to contribute to the success of the reading literacy of university students by creating appropriate study language materials with current and authentic professional texts and to motivate them to further read to search for current information. Teachers should choose appropriate professional texts corresponding to the criteria of students' language level, and their knowledge of the given professional topic and should stimulate further open discussion, i.e., give space for the development of foreign language skills.

If the text includes additional vocabulary with new and interesting information for the student, it enriches the student's lexicology. It is also very beneficial if the student understands

that the professional text is related to his field of study and will be relevant and usable for him in his future job. The positive experience of this form of e-testing may serve in the future as a methodological basis in case of various limitations and obstacles in the process of foreign language teaching of future engineers at the Faculty of Manufacturing Technologies. Future research will also consist of further examining the level of language competences of bachelor's students within other study programmes at the faculty. The study is considered to be the first step in experimental research aimed at obtaining feedback from students of various study programmes and comparing the results obtained.

However, students must be prepared to be able to work with various other types of texts, which differ in language level, atypical form, and new, unknown content. In class, they learn to develop a detailed analysis of the English professional text, summarize the text, compare information, and critically evaluate the professional text. In the team of teachers of professional foreign languages for engineering departments and departments related to manufacturing technologies, in the last academic year, there were changes not only in the test specification but also in English professional texts and study materials. Their role is to ensure that students' results continue to improve. Emphasis is placed on the literacy of university students; therefore, reading and the professional text itself is becoming one of the most important elements of foreign language teaching. In conclusion, it is necessary to emphasize the fact that reading comprehension is truly an integral and inseparable part of the teaching process, even at the university and in professional foreign language classes. The correct understanding of different professional texts has a huge benefit in students' practice and their future careers. Teachers at the Faculty of Manufacturing Technologies will continue to research professional foreign language study material using e-learning in the coming years. It will be more focused on the development of language teaching with the use of ICT in higher education. Through research, we want to point out the importance and significance of the chosen issue and scientific direction in the field of the application of information technologies and their close connection with language teaching. Such research is essential for the further development of ICT implementation theory and practice.

REFERENCES (TRANSLATED AND TRANSLITERATED)

[1] L. Oleksiienko, L. Sheptytska, and O. Fonariuk, "Online Education: Challenges and Prospects", *PEMR*, no. 2, pp. 60–69, 2020. https://doi.org/10.36690/2733-2039-2020-2-60 (in English)

[2] S. Akkara, V. S. S. Anumula, and M. S. Mallampalli, "Impact of WhatsApp Interaction on Improving L2 Speaking Skills", *Int. J. Emerg. Technol. Learn.*, vol. 15, no. 03, pp. 250–259, 2020. https://doi.org/10.3991/ijet.v15i03.11534 (in English)

[3] V. Jurkovič, "Online informal learning of English through smartphones in Slovenia", *System*, vol. 80, pp. 27–37, 2019. https://doi.org/10.1016/j.system.2018.10.007 (in English)

[4] J. S. Lee, "The role of informal digital learning of English and a high-stakes English test on perceptions of English as an international language", *Australasian Journal of Educational Technology*, vol. 36, no. 2, 155–168, 2020. https://doi.org/10.14742/ajet.5319 (in English)

[5] Ch. Ch. Lin, V. Lin, G. Z. Liu, X. Kou, A. Kulikova, and W. Lin, "Mobile-assisted reading development: a review from the Activity Theory perspective", Computer Assisted Language Learning, vol. 33, no. 8, pp. 833–864, 2020. https://doi.org/10.1080/09588221.2019.1594919 (in English)

[6] H. Huzairin, G. E. Putrawan, and B. Riadi, "Technology and language learning: English as a Foreign Language learners' use of smartphones for online informal learning in Indonesia", *Texto Livre*, vol. 13, no. 3, pp. 103–120, 2020. https://doi.org/10.35699/1983-3652.2020.24657 (in English)

[7] G. Dizon, "Subscription video streaming for informal foreign language learning: Japanese EFL students' practices and perceptions", *TESOL Journal*, vol. 12, no. 2, e 566, pp. 1–20, 2021. https://doi.org/10.1002/tesj.566 (in English)

[8] K. Tiron, A. Gherguț, A. M. Roșan, and C. M. Bostan, "Word Reading Accuracy as a Mediator for Fluency", *RREM*, vol. 14, no. 1, pp. 370–387, 2022. https://doi.org/10.18662/rrem/14.1/524 (in English)

[9] S. Motobayashi and T. Takahashi, "Changes in Japanese ESL Speakers' Identities and in Their Attitudes Toward Speaking English", *JLTL*, vol. 9, no. 1, pp. 30–52, 2019. (in English)
[10] J. Zarić and T. Nagler, "Reading comprehension on word- and sentence-level can be predicted by orthographic knowledge for German children with poor reading proficiency", *Read Writ*, vol. 34, pp. 2031–2057, 2021. https://doi.org/10.1007/s11145-021-10126-9 (in English)
[11] R. Krepel and E. Sinclair, "Motivating Secondary Students to Speak in Spanish Outside of Structured Classroom Activities", *JLTL*, vol. 9, no. 1, pp. 115–127, 2019. (in English)
[12] M. C. Maphalala and O. T. Adigun, "Academics' Experience of Implementing E-Learning in a South African Higher Education Institution", International Journal of Higher Education, vol. 10, no. 1, pp. 1–13, 2021. https://doi.org/10.5430/ijhe.v10n1p1 (in English)
[13] A. A. Afghani, "Evaluating the User Experience of E-Learning in the Distance Education Program at Taibah University", *International Journal of Higher Education*, vol. 10, no. 4, pp. 151–160, 2021. https://doi.org/10.5430/ijhe.v10n4p151 (in English)
[14] A. Amjadiparvar and G. Zarrin, "The Relationship between EFL Learners' Level of Language Awareness and Their Motivation and Achievement", *JLTL*, vol. 9, no. 2, pp. 37–48, 2019. (in English)
[15] T. Yabukoshi, "Self-Regulated Learning Processes Outside the Classroom: Insights from a Case Study of Japanese EFL Students", *The Journal of Asia TEFL*, vol. 17, no. 3, pp. 758–777, 2020. http://dx.doi.org/10.18823/asiatefl.2020.17.3.1.758 (in English)
[16] O. Yurieva, T. Musiichuk, and D. Baisan, "Informal English Learning with Online Digital Tools: Non-Linguist Students", *AE*, vol. 8, no. 17, pp. 90–102, 2021. https://doi.org/10.20535/2410-8286.223896 (in English)
[17] L. A. Khateeb, S. A. K. Shdaifat, and N. A. K. Shdaifa, "Effectiveness of Communication Techniques in Distance Education and its Impact on Learning Outcomes at Jordanian Universities (Northern Province)", *International Journal of Higher Education*, vol. 10, no. 2, pp. 74–82, 2021. https://doi.org/10.5430/ijhe.v10n2p74 (in English)
[18] D. Bozdoğan and B. Kasap, "Writing Skills and Communication Competence of Undergraduate Students in an Engineering English Course", *JLTL*, vol. 9, no. 2, pp. 49–65, 2019. (in English)
[19] M. Gluchmanova, "Innovative Forms of Education in Technical Study Material", *TEM Journal*, vol. 8 no. 2, pp.604–609, 2019. https://dx.doi.org/10.18421/TEM82-38 (in English)
[20] M. Gluchmanova, "The Importance of E-learning for Manufacturing Technologies Students", *AE*, vol. 8, no. 19, pp. 51–61, 2021. https://doi.org/10.20535/2410-8286.240737 (in English)
[21] N. K. Duke, A. E. Ward and P. D. Pearson, "The Science of Reading Comprehension Instruction", *The Reading Teacher*, vol. 74, no. 6, pp. 663–672, 2021. https://doi.org/10.1002/trtr.1993 (in English)
[22] R. Waring and S. McLean, "Exploration of the Core and Variable Dimensions of Extensive Reading Research and Pedagogy", *Reading in a Foreign Language*, vol. 27, no. 1, pp. 160–167, 2015. (in English)
[23] M. Farahian, F. Parhamnia, and M. Sheikhbanooie, "Web Questing in TEFL Courses: What Factors Deter the Students' Information-Seeking Behavior?", *ITLT*, vol. 86, no. 6, pp. 244–256, 2021. https://doi.org/10.33407/itlt.v86i6.4600 (in English)
[24] V. Rosa, Metodika tvorby didaktických testov, Bratislava: Štátny pedagogický ústav, 2007. (in Slovak)
[25] M. Pašalić and B. Plančić, "Issues Affecting Selection and Evaluation of ESP Teaching Materials", *Trans. Marit. Sci.*, vol. 7, no. 2, pp. 210–218, 2018. https://doi.org/10.7225/toms.v07.n02.011 (in English)
[26] O. O. Kucherova and I. O. Ushakova, "Effectiveness of Online Testing in General English University Course from Teacher and Student Perspectives", *ITLT*, vol. 87, no. 1, pp. 185–198, 2022. https://doi.org/10.33407/itlt.v87i1.4812 (in English)
[27] T. Kubiš, *Metodika tvorby testových úloh a testov*, Bratislava: Národný ústav certifikovaných meraní vzdelávania, 2015. (in Slovak)
[28] B. K. Prahani, B. Jatmiko, B. Hariadi, M. J. D. Sunarto, T. Sagirani, and T. Amelia, "Development Blended Web Mobile Learning Model on COVID-19 Pandemic", *TEM Journal*, vol. 10, no. 4, pp. 1879–1883, 2021. https://doi.org/10.18421/TEM104-51 (in English)
[29] Y. Krylova-Grek and M. P. Shyshkina, "Online learning at higher education institutions in Ukraine: achievements, challenges, and horizons", *Information Technologies and Learning Tools*, vol. 85, no. 5, pp. 163–174, 2021. https://doi.org/10.33407/itlt.v85i5.4660 (in English)
[30] F. Khonamri, M. Azizi, and R. Kralik, "Using interactive e-based flipped learning to enhance EFL literature students' critical reading", *Science for Education Today*, vol. 10, no. 1, pp. 25–42, 2020. https://doi:10.15293/2685-6762.2001.02 (in English)

Text of the article was accepted by Editorial Team 08.04.2022

ОНЛАЙН НАВЧАННЯ ІНОЗЕМНОЇ МОВИ ТА ОЦІНЮВАННЯ СТУДЕНТІВ ІНЖЕНЕРНИХ СПЕЦІАЛЬНОСТЕЙ

Марта Глухманова
кандидат філологічних наук, доцентка кафедри природничо-гуманітарних дисциплін
Кошицький технічний університет, Факультет виробничих технологій у Пряшові, м. Пряшів, Словаччина
ORCID ID 0000-0003-0945-1740
marta.gluchmanova@tuke.sk

Анотація. Дослідження мало на меті підкреслити ефективність використання ІКТ у викладанні та вивченні іноземної мови майбутніми інженерами. Проблема з оцінюванням студентів під час навчального процесу або в кінці навчального року виникла, коли Кошицький технічний університет був змушений перейти на дистанційну форму навчання. Експеримент проходив у зимовому семестрі 2021/2022 року в межах обов'язкового курсу *Англійська мова в інженерній практиці*. Для порівняння результатів електронних тестів за чотирма навчальними програмами – «Технології автомобільного виробництва», «Комп'ютеризовані технології виробництва», «Промисловий менеджмент» та «Інтелектуальні технології в промисловості» використовувались змішані методи. У дослідженні використовувався як якісний, так і кількісний підходи. Метод дослідження передбачав збір даних за допомогою онлайн-тестів, які студенти заповнювали та надсилали вчителю. Для оцінки онлайн-тестів студентів було використано кількісний метод. Якісний метод дослідження дозволив провести аналіз та інтерпретацію даних експериментального тестування. За результатами дослідження було зроблено висновок, що різні типи завдань Moodle можуть бути успішно застосовані для електронного тестування в межах оцінювання курсу англійської мови на рівні ЗВО. Дослідження визначило рівень мовних навичок 80 студентів першого курсу інженерного факультету виробничих технологій Пряшівського технічного університету Кошице, які брали участь в експерименті. Під час навчання та в підсумкових онлайн-тестах використовувалась загальноуніверситетська система управління навчанням – платформа Moodle. Результати електронного тестування виявили рівень володіння мовою, а вчителі змогли виявити слабкі та сильні сторони у викладанні фахового навчального матеріалу. Гіпотеза щодо мовних навичок була підтверджена. Найкращу оцінку з читання фахових текстів з розумінням отримали 43 учні (53,8%), а з граматики – лише 21 учень (26,3%). Було наголошено, що розуміння прочитаного є інтегральною та невід'ємною частиною навчального процесу в технічному університеті. Правильне розуміння професійного тексту має величезну користь і значення в їх практиці та майбутніх професіях.

Ключові слова: онлайн освіта; мовні навички; оцінка; технології виробництва; навчання; електронні тести.

This work is licensed under Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International License.