

HYBRID COMMUNICATION TRAINING TECHNIQUE TO SOLVE WARTIME ACADEMIC AND SAFETY ISSUES: PERCEPTION OF MEDICAL STUDENTS

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Abstract. Contemporary global epidemiological and wartime issues emphasize the development and application of academic techniques enabling the maintenance of qualitative education and training of future professionals. Healthcare is the direction requiring the most attention as the number of individuals seeking physical and mental care is continuously growing, while effective healthcare outcomes depend significantly on the well-developed communication skills of physicians. The research aims to study the perception of a hybrid communicative training technique (HCTT) suitable for in-class, online (synchronous and asynchronous), and hybrid types of learning and confirm that the development of a hybrid communicative training technique (HCTT), taking into account wartime safety and technical problems, can solve current educational tasks. The HCTT incorporates communication basics and the English language, promoting actualization, digitalization, and internationalization of higher medical education. Its effectiveness was evaluated by the survey, directed at defining medical students' perception of the technique. The research involved 407 participants. The data were analyzed by a series of theoretical and empirical methods. The results were verified statistically. The difference between the groups of categorized indices was studied by the table of frequencies and defined by Pearson's Chi-Squared Test. It was considered statistically significant if $p < 0.05$. The survey has shown that the responders highly evaluated the quality of the implemented HTCC. The analysis of HCTT components revealed significant differences concerning students' positive and negative perceptions of the technique. The survey results prove that medical students appreciate the HCTT and evaluate its quality as sufficient. According to the research results

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digital storytelling is a promising communication training technique, which should be further researched and implemented with the aim of improving communication skills and English mastery.

The performed research confirms that HCTT can be used to develop the communication skills of future physicians, by upgrading their reading, listening, and speaking competence. In addition, HCTT can be used as a training tool for Step 1, licensing examination, and Medical English exams as it is based on professional pre-clinical and clinical topics and includes tasks directed at developing professional thinking, medical vocabulary, and terminology.

Keywords: *hybrid communication training technique, medical students, Medical English, wartime.*

1. INTRODUCTION

Well-developed communication skills contribute significantly to the professional success of healthcare providers. Improving different aspects of communication competence is one of the dominant directions of higher medical education in Ukraine. Medical curricula incorporate linguistic, cultural, and ethical training, patient-centered and family-centered approaches to care, case studies for various communication scenarios in medical settings, and skills of interpersonal academic communication (LNMU, 2024). However, the communication training process at Ukrainian medical universities is hindered due to the challenges of contemporary global epidemiologic and local wartime. It requires the research and application of new innovative approaches to promote the quality of communication skills and readiness for future professional tasks.

Digitalization of the communication training process by the involvement of various tools of information and communication technologies (ICT) can provide the solution for maintaining the quality of the academic process, i.e., communication skills development, in the restricted in-class learning conditions due to COVID-19 pandemic and Russia's war in Ukraine. The implementation of ICT-based communication training into various courses, particularly in Medical English, can aid in developing English fluency, promote future communication competency, and encourage the internationalization of medical education.

The problems of digitalization of higher medical education and the application of ICTs for various specific academic purposes, i.e. communication training, have been rigorously researched worldwide. The literature search has revealed several outstanding papers that formed a methodological basis for our study: 1) ICTs in higher medical education (Rehman et. al, 2019; Maniuk, 2016), 2) contemporary requirements for communication training of future physicians (Zalazar-Jaime et. al., 2021; Susanti et. al., 2023), and 3) online or hybrid communication training techniques (Suryawanshi & Suryawanshi, 2015; Mammadov et. al., 2019). The above studies outline the importance of implementing various communication training tools to prepare future physicians for professional interaction challenges.

In addition, Suryawanshi and Suryawanshi (2015) described e-learning models and the fundamentals of their implementation. The requirement for studying students' perception of e-learning has been analyzed by Arun et. al. (2023), Zalazar-Jaime et. al. (2021) and Susanti et. al. (2023). The possibilities of e-courses and their suitability in times of COVID-

19 pandemic are researched by Vivek et. al. (2023), Hutor & Sodomora (2022). The papers of Akgun et. al. (2015), Pokrovskaya (2019) state that ICTs can facilitate the academic process, promoting interactivity and flexibility. The scientists Sodomora et. al. (2021), Andrienko et. al. (2020), Krasnokutskaya & Kovalchuk (2017). confirm the usefulness and effectiveness of e-learning tools for developing English mastery. Several analyzed papers describe the use of artificial intelligence (Kramar, Bedrych & Shelkownikova, 2024) and specific ICTs in teaching English i.e., social media tools (Maierová, 2024; Krasnokutskaya, & Kovalchuk, 2017), mobile applications (Maniuk, 2016; Levkivsky et. al., 2024), digital storytelling (Sodomora et. al., 2021). The papers confirm the reliability of ICT tools for communication purposes and improving English mastery, particularly during a crisis. However, the analysis confirms the requirement for a comprehensive interdisciplinary approach considering current academic requirements associated with English language and communication skills enhancements in restricted safety and technical conditions caused by wartime.

The study of papers on the effect of war on higher education (Bernardo & Baranovich, 2014) and potential war consequences (Pellini, 2021) raises awareness of incorporating mixed learning methods, i.e., hybrid learning instruments, suggesting possibilities for more flexible applications compared to e-learning tools. However, the analysis of wartime academic issues has not revealed techniques or models of communication skills development that have the potential to improve learning outcomes during the crisis. In addition, a literature search has not revealed an interdisciplinary academic technique that could be applied to sustain the quality of English language learning and communication training in future physicians considering wartime challenges.

The described academic challenges and insufficiency of scientific evidence, as well as practical experience and methodical ideas, encouraged the development of the hybrid communication training technique (HCTT) to improve both communication competency and Medical English mastery in medical students. The research aims to evaluate the quality of HCTT based on students' perceptions through the survey and confirm its appropriateness for solving current educational tasks taking into account wartime safety and technical issues. It has been supposed that the unique practical experience of Ukrainians in the field of medical education and the interdisciplinary mixed approach to communication skills development can be valuable for preventing the failure of communication training associated with urgent wartime and epidemiologic conditions.

2. METHODS

The performed research involved three major stages, namely: 1) literature analysis, 2) development of the of HCTT, and 3) survey among first-year medical students enrolled in the course of Medical English at the Department of Latin and Foreign Languages of Danylo Halytsky Lviv National Medical University (LNMU). The main survey objectives included: defining students' perception of HCTT; analyzing and discussing the survey findings to improve the process of communication skills development; and determining the appropriateness of HTCC for communicative purposes and language learning. The research applied a series of theoretical and empirical methods, namely: the literature and data analysis, categorization

of findings, critical data analysis, description, interpretation, and discussion of obtained results.

The design of HTCC is suitable for different forms of academic process, i.e. hybrid, in-class, and online. It involves traditionally used e-learning tools (e-tests, social media tools), video conferencing platforms, and upgraded training activities in a virtual university (MISA) setting, namely: 1) *15-minute explanatory video* lectures followed by *two* training exercises, aimed at improved understanding of professional topics according to the thematic schedule; learning pronunciation peculiarities of relevant terms and professional vocabulary; related grammar issues; 2) an interactive text and *two* reading comprehension tasks, aimed at improving professional medical English vocabulary, reading, analytical and critical thinking skills; 3) *three* listening comprehension activities, contributing to the development of listening skills and perception of professional vocabulary on relevant topics; 4) *four* vocabulary and terminology building activities, aimed at improving the skills of professional use of both general and Medical English (collocations, prepositions, word formation, etc.), and 5) *one* digital storytelling task directed at improving English speaking fluency, rhetorical skills, lexical and grammatical speaking quality, structured and effective speaking on professional topics, and digital professionalism (Sodomora et. al., 2021).

The students' perception of the developed HCCC was defined by the survey involving 407 participants (75.7% females (308/407) and 24.3% males (99/407)). It primarily aimed to define the opinion of students concerning the newly developed hybrid communication training technique in the virtual learning environment. The survey was conducted online using Google Forms. The questionnaire was primarily approved by the ethical committee. It included 18 questions on students' perceptions toward the implemented communication training technique, its quality, and its effectiveness. The test-retest reliability of the questionnaire involved 53 participants. The difference between the received responses was not significant ($p > 0.05$). Paired correlation coefficient accounted for 0.81 to 0.93 ($p < 0.05$), Cronbach's $\alpha = 0.81$.

The results were verified by applying statistical methods and introduced as absolute values of positive responses and their relative value in percent. The difference between the groups of categorized indices was studied using the table of frequencies and defined by Pearson's Chi-Squared Test. The difference was considered statistically significant if $p < 0.05$. Statistical calculations were performed using R Studio software.

3. RESULTS

Generalized analysis of survey results has shown that the respondents highly evaluated the quality of the implemented HTCC—a mean value of 8.09 out of a maximum of 10 points.

The comparative analysis of the usefulness and effectiveness of HCTT in various forms of the academic process according to a 10-point scale showed that students consider its effectiveness as the highest in terms of hybrid learning. Its effectiveness in terms of in-class learning is lower (mean values of 8.05 vs 8.01 points). Moreover, the students evaluated the effectiveness of the techniques as the lowest in terms of online learning (mean value of 7.56 out of 10). However, the statistical analysis revealed no significant differences between the compared criteria ($p > 0.05$) (Figure 1).

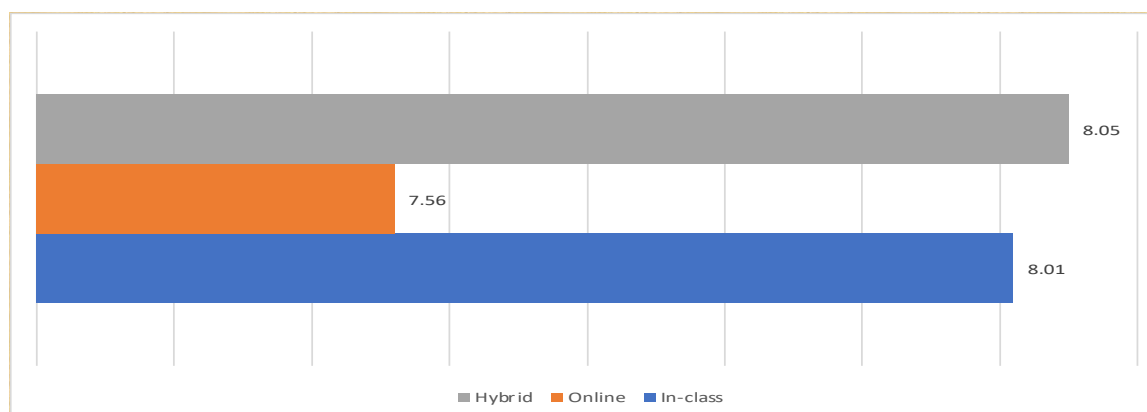


Figure 1. Effectiveness of HCTT in various forms of academic process

The analysis of results confirms that the hybrid communication training technique was used as a supplementary training option in terms of in-class learning (299/407, 73.5%). Traditional digital tools applied to support communication skills development either offline or online include Zoom (395/407, 97.1%), Telegram (344/407, 84.5%), Viber (294/407, 72.2%), YouTube (219/407, 53.8%), Google Meet (35/407, 8.6%) and TikTok (28/407, 6.9%). Consequently, students consider Zoom as the most effective tool of communication training enabling synchronous interaction of communication agents ($p < 0.05$).

The survey results state that HCTT was applied as an obligatory learning tool in case of the urgent requirement for a temporary shift to online learning (290/407, 71.3%) due to frequent or long-lasting air alarms, bombardments, electricity issues, etc.

The responders indicated that newly implemented HCTT in a virtual classroom aided improved understanding of the topic (225/407, 55.3%), compensated for missed academic classroom time (198/407, 48.6%), contribute to improving in-class learning (160/407, 39.3%), enhance general learning outcomes (117/407, 27.8%), make the academic process more interesting (105/407, 25.8%), increase satisfaction with the academic process compared with application of traditional teaching and learning approaches (93/407, 22.9%). However, a significant share of responders stated their indifferent attitude towards implemented tools (70/407, 17.2%) or characterized them negatively, having indicated that improved virtual classroom activities complicate the process of learning (83/407, 20.4%), do not aid in learning (61/407, 15%), and are not interesting (28/407, 6.9%).

The responders were asked to evaluate the quality of each of the HTCC components by the following criteria: positive – “high quality” or “good quality,” and negative – “poor quality” or “absolutely poor quality.” The results confirm the sufficient quality of implemented tools since positive responses prevailed among all compared components. The statistical analysis revealed a significant difference between the relative value of positive and negative responses ($p < 0.05$). In all compared components, the option “good quality” was characterized by the highest number of responses ($p < 0.05$). The options “high quality,” “poor quality,” and “absolutely poor quality” ranked second, third, and fourth among options, respectively. The largest share of “high quality” responses among all compared components belongs to digital storytelling ($p < 0.05$) (Table 1).

Table 1. Evaluation of HCTT components

Component of HCTT	High quality	Good quality	Poor quality	Absolutely poor quality
Video-lecture	136 (33.4%)	219 (53.8%)	46 (11.3%)	6 (1.5%)
Video-lecture tasks	76 (18.7%)	251 (61.7%)	70 (17.2%)	10 (2.5%)
Interactive text	111 (27.3%)	254 (62.4%)	38 (9.3%)	4 (1%)
Interactive reading tasks	103 (25.3%)	237 (58.2%)	62 (15.2%)	5 (1.2%)
Interactive video	141 (34.6%)	222 (54.5%)	39 (9.6%)	5 (1.2%)
Listening-video comprehension tasks	106 (26%)	219 (53.8%)	74 (18.2%)	8 (2%)
Vocabulary and terminology building activities	123 (30.2%)	237 (58.2%)	43 (10.6%)	4 (1%)
Digital storytelling	180 (44.2%)	183 (45%)	42 (10.3%)	2 (0.5%)

Additional survey tasks involved the evaluation of developed HCTT based on defining the prognostic communication competency of medical students after completing the academic course in English. The respondents predicted the predictive level of their communication competence by the criteria of quality of teaching vs quality of their learning. The options for evaluation included: “poor,” “satisfactory,” “sufficient,” “good,” and “high.” The responses of students predicting a “good level of their future communication competency” dominated ($p < 0.05$) concerning both teaching and learning criteria. The options “sufficient,” “high,” “satisfactory,” and “poor” ranked second, third, fourth, and fifth, respectively (Figure 2).

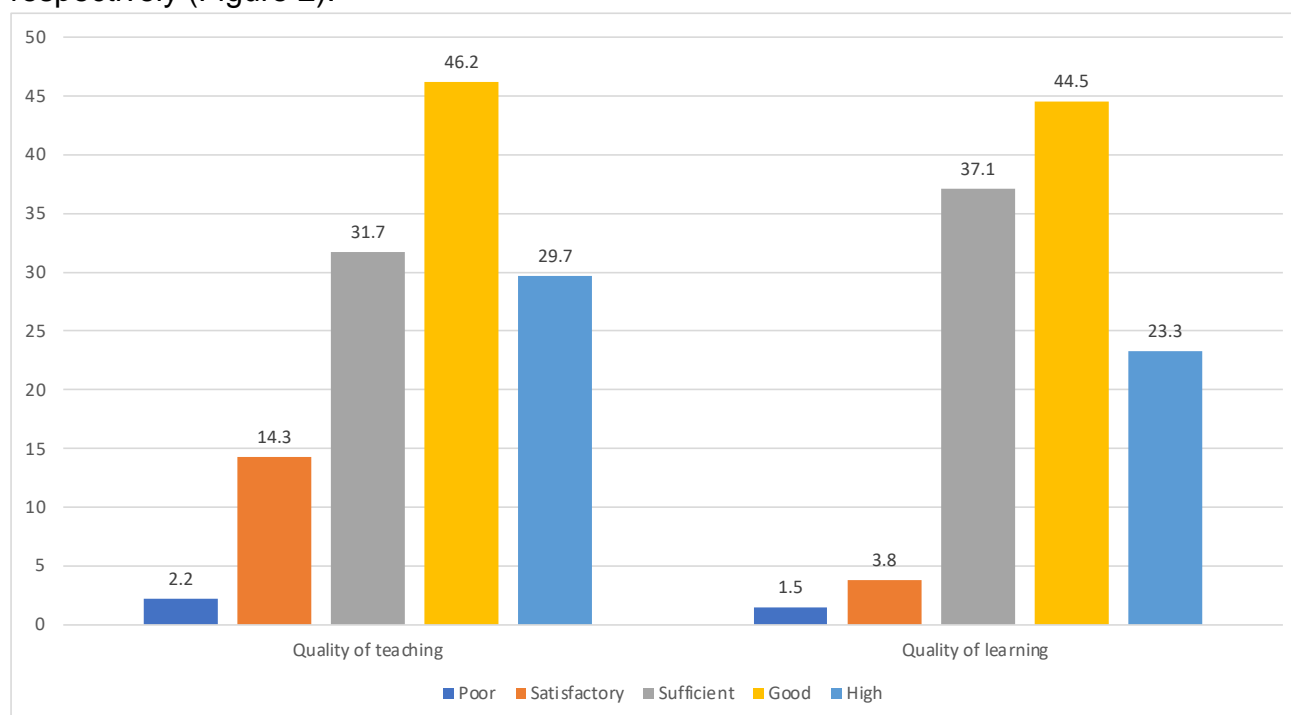


Figure 2. Prognostic communication competency in medical students according to the quality of teaching vs quality of learning.

4. DISCUSSION

The scientific and sociological data (D'Alessandro et. al., 2004, Groff, 2013, Gutor et. al. 2023) indicate the insufficiency of communication skills development and, consequently, the requirement for improving communication competence in healthcare professionals. Qualitative and effective communication in the health care setting depends on the interrelation and high level of cultural, behavioral, and ethical skills, linguistic knowledge, and personal moral qualities of medical professionals (Hardy& Sumner, 2014). The theoretical and practical experience confirms the urgent requirement for communication training enhancement at medical universities (Berk, 2009).

Over the past decade communication training has been modernized, standardized, and implemented formally in the curricula of Ukrainian higher medical education institutions. The curricula include many obligatory and elective courses directed at improving functional knowledge and practicing communication skills in medical students. In addition, both clinical and communication skills are finally evaluated at the Unified State Qualification Examination. However, the education system of Ukraine has met two significant challenges that forced the change of communication training approaches: the first occurred in 2019 due to the COVID-19 pandemic, and the second – in 2022, associated with the full-scale Russia invasion.

In 2019 Ukrainian higher medical education urgently changed the mode of study (Baranovska et. al., 2023). Despite the controversial reputation in medical education (Benmayor, 2008), distance learning tools served as the only solution having enabled the maintenance of educational quality. In that period the virtual learning possibilities at Ukrainian medical universities were boosted, encouraging the development of new e-learning techniques.

A high level of communication skills primarily depends on the application of theoretical knowledge and functional skills in various practical communication scenarios, either natural or hypothetical ones. Some theoretical aspects of communication, i.e. linguistic peculiarities, types of communication, communication strategies and approaches, legal regulations, patient rights, and deontological and ethical rules of interaction in the healthcare setting, can be developed and qualitatively evaluated by both online or offline evaluation tools. However, the survey results indicate that the development of functional communication skills is much more challenging online.

The survey participants indicated using various video-conferencing platforms (VCP) in their study online. Due to the characteristic features of the synchronous e-learning tool, VCPs provide a favorable environment for practicing communication skills during classes, enabling monologues, dialogues, or group discussions. On the other hand, restricted safety conditions, frequent air alarms, and electricity-related problems hinder both in-class and synchronous online academic processes at Ukrainian medical universities, necessitating the development and application of asynchronous e-learning tools.

Taking into account the contemporary academic issues, the faculty of the Department of Latin and Foreign Languages at LNMU initiated the actualization of a virtual university environment and extended the content of e-courses by the HCTT described above. The responses of students confirm the appropriateness of taken decision. The technique, due to

its universal study mode characteristics, was intensively applied by teachers and appreciated by students ($p < 0.05$) (Figure 1).

However, the detailed analysis of students' responses concerning the quality of the technique components revealed the requirement for its improvement. The gaps between the percentages, describing the high quality and good quality of all technique components, are statistically significant ($p < 0.05$), except for digital storytelling (Table 1). While we consider this quality level sufficient, it is further required to analyze the reasons and to enhance the technological, design, and methodical characteristics of the technique.

In addition, scientific evidence indicates the need for implementing oral communication basics formally in the curricula of medical universities (Robin, 2016; Robin & McNeil, 2012). A total of 17.4% of survey responders (71/407) stated the requirement for complementing the syllabus of Medical English with additional oral communication topics and speaking tasks (25%). Since the department provides communication training as obligatory and elective courses in medical English for students in General Medicine and Pediatrics (1st-6th years of study), Dentistry (1st-6th years of study), Pharmacy (1st-5th years of study), Physical Therapy (1st-4th years of study) and Management in Healthcare (1st year of study), medical students enrolled in the courses improve their English mastery and communication skills in the context of healthcare. They obtain knowledge and skills in professional and ethically adequate communication with their peers, teachers, and administration as well as prepare and practice possible future communication scenarios in a medical setting, namely: communication with patients and their relatives, counseling with colleagues and seniors, solving complicated communication issues and dilemmas, informing bad news, expressing respect, tolerance and empathy, writing letters and applications, etc.

The restricted possibility of in-class and online synchronous learning forced the search for techniques enabling the development of the above-listed skills by online asynchronous tools. The survey results confirm that HCTT can contribute significantly to developing the linguistic component of competency, particularly medical English skills. The relevant studies on language learning (Sodomora et.al., 2021) and associated challenges in online environments (Krasnokutska & Kovalchuk, 2017; Levkivskyi, Marchuk, Kravchenko & Pavlenko, 2024; Maierová, 2024; Maniuk, 2016) indicate raising motivational and educational issues of language acquisition and development during a crisis. The designed HCTT enabled the development of terminological, vocabulary, reading, listening, and speaking skills in restricted academic conditions involving a flexible approach to language learning, represented by the capability of HCTT in conditions of both in-class and online learning.

The most challenging among all communication skills in terms of asynchronous learning is speaking, since the development of this skill requires interpersonal interaction. Consequently, it has been decided to implement digital storytelling and attempt to develop monologue speech, creativity, and fluency through this method. The received digital stories on the relevant topic provided sufficient feedback enabling evaluation of the speaking progress of medical students, the level of their terminology, vocabulary and grammar skills, understanding of the topic, creative thinking, and fluency (Sodomora et. al., 2021 Gutor et.

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al., 2023). Survey responders highly evaluated the quality and effectiveness of digital storytelling ($p < 0.05$).

Medical students evaluated their future communication competency according to the quality of teaching and learning as “good” (Figure 2) (Figure 3). The following indicates both the appropriateness of the applied teaching and learning tools and the requirement for continuous upgrading of academic content and its quality. The gaps between the responses ‘good’ and “high,” concerning quality of teaching and quality of learning, are statistically significant ($p < 0.05$).

The survey identified areas of HCTT that need improvement. Some students found the virtual classroom activities complicated and felt they were unhelpful for learning skills development. These results could be associated with the evaluated quality of video-lecture tasks, Interactive reading tasks, and Listening-video comprehension tasks which are characterized by the biggest number of “negative” (poor quality and absolutely poor quality) responses (Table 1). However, interactive text, interactive video, and digital storytelling were evaluated as the most qualitative (Table 1). The correlation of positive/negative HCTT evaluation and specific factors i.e. digital competency, individual learning styles, etc. form the focus for further research.

5. CONCLUSIONS

In restricted learning conditions due to contemporary global epidemiological and local wartime issues, it is crucial to develop techniques enabling the maintenance of educational quality. It has been proved that the developed HCTT serves as an effective solution for developing communication skills in future physicians taking into account existing safety challenges. It combines learning communication skills with studying English, and its quality has been highly evaluated by medical students. According to the research results digital storytelling is a promising communication training technique, which should be further researched and implemented.

Developed HCTT can be used to improve the communication skills of future physicians, and upgrade their reading, listening, and speaking competence. In addition, it can be used as a training tool for Step 1, licensing examination, and Medical English exams as it is based on professional pre-clinical and clinical topics and includes tasks directed at developing professional thinking, medical vocabulary, and terminology.

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Conflict of interest

Non conflict of interest declared.

ВПРОВАДЖЕННЯ ГІБРИДНОЇ ТЕХНОЛОГІЇ КОМУНІКАТИВНОЇ ПІДГОТОВКИ З МЕТОЮ ВИРІШЕННЯ ПРОБЛЕМ ОСВІТИ ТА БЕЗПЕКИ НАВЧАННЯ: СТАВЛЕННЯ СТУДЕНТІВ-МЕДИКІВ

Анотація. Актуальні глобальні виклики, пов'язані із епідеміологічними проблемами та загрозами воєнного часу, привертають увагу до потреби створення і застосування технологій навчання, що здатні забезпечити належний рівень якості вищої освіти та підготовки майбутніх фахівців. Галузь охорони здоров'я заслуговує особливої уваги, оскільки кількість осіб, що потребують фізичної та психологічної допомоги невпинно зростає. У свою чергу, ефективність процесу лікування значною мірою залежить від комунікативної компетентності лікаря. Мета дослідження – виявити ставлення здобувачів освіти до гібридної технології комунікативної підготовки (ГТКП), що ефективна під час очної, віддаленої (синхронної та асинхронної) та змішаної форм навчання, та довести, що ГТКП може вирішити актуальні освітні виклики, пов'язані із технічними проблемами і потребами безпеки здобувачів освіти.

ГТКП інтегрує комунікативну та англійську підготовку, сприяючи модернізації, цифровізації та інтернаціоналізації вищої медичної освіти. Її ефективність виявлено за допомогою анонімного опитування студентів-медиків щодо їхнього ставлення до впровадженої технології. У дослідженні взяли участь 407 учасників. Отримані дані проаналізовано за допомогою низки теоретичних та емпіричних методів. Результати анкетування студентів статистично верифіковані. Різницю між групами категорійних показників вивчено за допомогою таблиці частот та критерію узгодженості Пірсона (хі-квадрат). Різниця вважалася статистично значимою при $p < 0.05$. Отримані дані демонструють високу оцінку якості ГТКП. Компонентний аналіз ГТКП виявив значні статистичні відмінності між позитивними і негативними відповідями учасників. Результати опитування доводять, що студенти-медики вважають впроваджену ГТКП цінним освітнім ресурсом і належно оцінюють її якість. Відповідно до отриманих результатів прогресивним напрямом комунікативної підготовки є цифровий сторітелінг, який потрібно надалі досліджувати і впроваджувати з метою інтеграції розвитку комунікативних навичок та англійської майстерності.

Проведене дослідження доводить, що ГТКП може використовуватися з метою розвитку комунікативної компетентності майбутніх лікарів. Вона має позитивний вплив на рівень розвитку навичок читання, слухання та усного мовлення. Окрім цього, ГТКП може використовуватися як освітній ресурс для підготовки до ліцензійних іспитів, субтесту ліцензійного іспиту КРОК 1 та екзамену з англійської мови медичного спрямування, оскільки її зміст охоплює професійну пре-клінічну та клінічну тематику, а завдання та вправи орієнтовані на розвиток фахового мислення, збагачення рівня володіння медичною лексикою та термінологією.

Ключові слова: гібридна технологія комунікативної підготовки, студент-медик, Англійська мова медичного спрямування, воєнний час.