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VIRTUAL TEACHING AND LEARNING ENVIRONMENT IN SHAPING STRATEGIES FOR PROFESSIONAL FOREIGN LANGUAGE COMMUNICATION BETWEEN FUTURE SOFTWARE ENGINEERS

Abstract. The article substantiates and appraises a set of PC-oriented and network techniques (such as online chat-based training and learning) and communicative and game-playing techniques (such as briefing, debriefing-contemplation, simulation) to help future software engineers elaborate a strategy to engage in communication on professional matters in a foreign language. The authors have ascertained the structure and the contents of the key notions pertaining to the present study, specifically: 'strategy for professional foreign language communication', 'virtual teaching and learning environment', and 'online chat teaching and learning techniques'; a system of exercises and tasks has been developed that are to be given out to future specialists in order to develop their online communication skills in line with the aforementioned strategy. 'Strategy for professional foreign language communication' is construed by the authors as a cumulative aggregate for incremental thinking and speaking activities designed to help participants of the act of communication model their own communicative behaviour in the context of communication on professional matters in a foreign language aimed at attaining the objective of communication in the process of conversing with each other. Students' index of personal interest in studying a foreign language for communication on profession-related matters has also been verified. In order to ascertain the level of personal interest in a foreign language among students, a questionnaire survey focusing on 1st and 2nd year students of the Faculty of Mathematics and IT Technologies at Ivan Franko National University of Lviv (Ukraine) has been conducted. We have compiled methodological guidelines to be issued to foreign language teachers at universities, outlining best practices to organise training and help future software engineers outline their strategies for professional foreign language communication; besides, a training toolkit entitled IT Student's English Handbook showcasing a number of options for online (Internet-based) simulations has been put together. Having interpreted the results of questionnaire survey, we have been able to prove that the abovementioned training techniques do prove to be efficient.

Keywords: virtual teaching and learning environment; IT-based teaching techniques; strategies for professional foreign language communication; future software engineers.

1. INTRODUCTION

Formulation of the problem. As Ukraine is expanding its overseas outreach in the novel atmosphere of multinational collaboration in the realm of information technologies, our country is increasingly in need of specialists whose command of foreign languages is sufficient for accomplishment of professional assignments: searching for information one is in need of, communicating with colleagues and clients on a professional level, presenting software products and suchlike. Being the core element of the action of communication on profession-related matters in a foreign language, a future software engineer is set to develop

his/her professional image through accurate application of proper linguistic and speech tools used to implement strategies for communication on professional matters in a foreign language.

As the number of intramural academic hours allocated to teach the Foreign Language for Professional Communication discipline is decreasing and a considerable number of extramural academic hours is allocated for unsupervised self-training of future software engineers mastering the aforementioned academic disciplines. It is an increasingly relevant to make certain arrangements in order to organise extracurricular activities of students on the basis of computer-assisted technologies and the Internet. However, the study of the problem of shaping strategies for professional foreign language communication between future software engineers allowed to reveal a generally low level of its formation. It should be noted that 260 (65%) students indicated average and low levels of skills and knowledge of professional foreign language communication, which is one of the main problems of our study. At the same time, about 340 (85%) of graduate students of the Faculty of Mathematics and IT Technologies at Ivan Franko National University of Lviv (Ukraine) are convinced that knowledge of professional purposes communicative strategies is an indicator of professionalism of the modern specialist in the programming field.

Thus, the development and substantiation of effective methods of teaching future software engineers foreign language for professional communication, aimed at the development of professional foreign language communication strategies, takes a prominent place in the theory and methodology of teaching the Germanic languages at the present stage.

Analysis of recent research and publications. Contents of a package used to teach a foreign language at higher education institutions have been theoretically substantiated in works delivered by such researchers as S. Nikolajeva, G. Boretska, N. Majer, O. Ustymenko, V. Chernysh [1]; outlining and implementation of communicative strategies have been the focus of studies undertaken by M. Hannafin, S. Land & K. Oliver [2], I. Melnyk [3], D. Tereshchuk [4] et al; application of computer-based technologies and the Internet in the course of training of future specialists has been the primary issue researched by B. Barrett & P. Sharma [5], D. Euler & S. Seufert [6], D. Fisher & P. Muihead [7], M. Warschauer, H. Shetzer & C. Meloni [8] et al; matters pertaining to elaboration and adoption of communicative game-playing techniques have been the subject of researches by N. Moiseiuk [9], [10], L. Morska [11], P. Bambrough [12], [13], K. Jones [14], and J. Carson-Jackson [15].

Social demand for top quality foreign language training for professionals that are to be working in international companies both in Ukraine and abroad as well as a great number of academic researches focusing on various aspects of the selected issue point to the fact that the topic of our academic investigation is of utmost importance. There has, after all, been no comprehensive research undertaken so far into the issue of how to put together strategies on how the Internet can be used to teach software engineers how to communicate in a foreign language on matters related to their profession; hence arise both the rationale and the timeliness of our present research.

The purpose of the article is to theoretically substantiate and implement communicative, game-playing, and IT-based techniques into the training process in order to shape strategies for professional foreign language communication by and between future software engineers. In order to accomplish the stated objective, we have to execute the following tasks:

1) to ascertain the structure and the contents of the following notions: '*strategy for professional foreign language communication*', '*virtual teaching and learning environment*', '*online teaching techniques*';

2) to design a system of exercises and tasks to be given out to future specialists as a strategy to boost their ability to engage in online communication on professional matters in a

foreign language and formulate methodological guidelines for foreign language teachers on how to organise teaching so as to shape a strategy to help future software engineers develop their ability to communicate on professional matters in a foreign language;

3) to check students' index of personal interest in studying a foreign language for professional communication.

2. METHODS OF RESEARCH

The abovementioned tasks stipulate that we apply the following methods of research: analysis of academic and pedagogical works on the topic of our research as well as of training packages representing major types and genres of discourse between future software engineers; investigation into and generalisation of pedagogical experience; polling students and distributing test assignments among them; conducting questionnaire surveys aimed at determining students' needs and challenges they meet in the course of shaping of strategies for professional foreign language communication; pedagogical experiment; methods of mathematical statistics.

Conceptual prerequisites for the present research

The contents of university-level foreign language training package for future software engineers stipulates that students should be developing strategies to communicate on professional matters in a foreign language. Whether the speaker himself/herself selects one strategy of communication or another depends on the particulars of each specific situation in the course of communication where one aims at attaining certain specific objectives as a result of the act of communication.

Academic researchers usually regard **strategy** as an act whereby one comprehends the situation by and large and then establishes the vector for the development and organisation of an impact aimed at attaining stipulated objectives [3, p. 377–380]. At the same time, we construe **strategy for professional foreign language communication** as *a cumulative aggregate for incremental thinking and speaking activities designed to help participants of the act of communication model their own communicative behaviour in the context of communication on professional matters in a foreign language aimed at attaining the objective of communication in the process of conversing with each other*.

Contemporary pattern of development accepted by the conventional Ukrainian system of education emphasises the role played by participants of the teaching and learning process, i.e. students and their professors. Hence unfold modifications in the structure of the teaching and learning environment which is comprised mainly of context, resources, conceptual developments, tangible facilities, and linguistic tools & technologies applied to support the process of teaching the students [9, p. 115–140]. Thus, in view of prior studies undertaken by academic researchers as well as considering the abovementioned aspects pertaining to the teaching and learning environment, the context of our present research calls for construing the **teaching and learning environment** as *an interaction between miscellaneous tangible and virtual factors on the one hand and miscellaneous human factors on the other hand that are mutually impacting each other in a variety of combinations with complex outcomes*. In their communication with each other, parties to the teaching and learning activities and environment (i.e., academic teachers and students) interact in a variety of patterns. In order to attain positive dynamic patterns for shaping of the strategies for communication on professional matters in a foreign language, the interaction between parties to the teaching and learning activities must be of interactive nature.

Interactivity, as per N. Moiseiuk, is construed as «*an ability or capability to interact or remain in the dialogue mode with a human being or with a computer*» [9, 638]. Interactivity stipulates that communication is an element of psychological contact and interaction; and that it also fosters the development of friendly relations in a group. As they are interacting with each other, students communicate using language and conveying multisensor information which is comprehended and memorised by the recipient(s) as efficiently as possible.

Virtual teaching and learning environment developed on the basis of e-platforms like *OLAT* or *Moodle* has already become commonplace in most European universities. A vast majority of educators equate a virtual teaching and learning environment with a PC and telecommunications-based environment that is fulfilling educational functions. Virtual teaching and learning environment is construed as a software designed to construct a remote education and training system and virtual education establishments and to subsequently provide support to the above [10]. Such interpretation confines itself to construing the notion of teaching and learning environment as a variety of academic environment which is created and the existence and operation of which is then supported with the help of technical facilities and telecommunication networks, particularly by the Internet resources, that is: web pages, email, news feed, online chats, audio and video conference calls and meetings. Thus, **virtual teaching and learning environment**, in its present-time interpretation, is construed as *a support system designed to accommodate top efficiency training, taking into consideration individual education needs of each student and fostering positive interaction between people, which is what is needed for the teaching process to be efficient.*

It is our opinion that, in the contemporary world, the process of teaching professional foreign language communication may be enhanced primarily with tools developed on the platform of the most recent IT technologies. A **training technique** is *a set of teaching procedures selected and arranged in a certain order which the academic teacher is using in the course of the training session and a theoretically grounded sequence of actions undertaken by both the professor and the student which is in compliance with major provisions of the method of training which is actually being applied* [1, p. 12-13]. In our opinion, major and the most recent techniques used to shape strategies for communication on professional matters in a foreign language among future software engineers are: *network technologies* (the Internet, web technologies); *computer-oriented techniques* for training which stipulate for PC-based teaching and learning; *communicative and game-playing techniques.*

In the opinion of researcher L. Morska, major areas in which IT technologies may be used in the course of teaching foreign languages include: using IT technologies *to attain the objective of training by way of modelling, through visualisation* of language, speech, social, and cultural processes and phenomena; through *organisation of drilling* to internalise the training package (by developing speaking skills and language capacities); through *supervision over and evaluation of* the maturity of skills and abilities, storage, collection, and processing of statistical information; through automated search for information; through fostering dialogue and PC network-based communication [11, p. 15].

We adhere to the opinion furthered by such foreign researchers as M. Warshauer, H. Shetzer, C. Meloni [8] who are highlighting three major areas in which the Internet should be used in the training process — that is: for *communicating* (conversing with the assistance of the Internet and execution of joint online projects by the students), for *informing* and for *publishing*. In our practice of teaching foreign languages, we, too, have been highlighting the clear arrangement in how the Internet is to be used — that is, pursuant to the pattern suggested by such researchers as B. Barrett, P. Sharma [5]: *online* (teaching and learning over the Internet before, during, or after 'training sessions proper'); and then *offline* (extramural learning).

The former variety is comprised of the following major stages:

1. *pre-PC work,* in the course of which the teacher supplies the students with the necessary instructions stipulating the manner in which they should be approaching their online studying;

2. *computer-based work,* in the course of which the students are performing searches;

3. *post-computer work,* in the course of which the students prepare a report on the information they have collected while working and studying online.

Other varieties of students' online work may also include: using websites to supply presentations in a foreign language with visual illustrations; online work aimed at accomplishment of academic projects; online execution of class assignments ahead of intramural training sessions etc. Extramural (offline) learning mode was applied by the students to conduct web searches for original texts to be subsequently discussed in class; to make presentations; to work on various projects and so on.

As we were outlining our strategies for professional foreign language communication, we resorted to both custom-organised online communication and free communication over the Web. Custom-organised communication includes interactive discussions subdivided into two categories:

1. synchronous/live technologies (online chats, conference calls with native speakers in the course of which the students are communicating over the Internet and are discussing various matters with students from other educational establishments);

2. asynchronous/non-live technologies (online forums, email etc.).

One efficient variety of education activities that is organised with the assistance of cutting-edge PC-based foreign language training techniques and helps outline strategies for communication on professional matters in a foreign language is the online chat-based studying activity. **Online chat-based studying** is construed as *a form to organise synchronous online communication over the Internet* [1, p. 38]. This variety of studying has allowed to merge speaking and listening comprehension material with communication and social interaction, the latter playing a highly important role in the life of a student [6, p. 286]. By participating in an online chat studying session, students — both under supervision of their professor acting as a facilitator and in an unsupervised mode — were engaging in a free themed dialogue, practising and showing the degree to which they have successfully internalised previously adopted strategies for communication on professional matters in a foreign language.

With the **briefing** technique applied right ahead of online chat-studying sessions, we have managed to ensure that the students are duly prepared to undertake the assignments stipulated in the course of oral or written communication activities. The professor suggested a scenario and then tabled proposals as to how preliminary planning was to be undertaken. At times, he was merely urging students to determine rules for a certain act of communication and to select a group leader whose primary functions were to make sure the participants actively participate in the process, and make sure they remain 'in the loop' of the selected topic and do not deviate too far from it. Important *components of briefing*, in the opinion of researcher D. Tereshchuk, include: preparation and planning the process of briefing; determining the purpose and the objective of an act of communication; motivating participants of a study group; determining rules for the act of communication; determining roles to be played and obligations to be complied with by the participants of a group; electing a group leader; applying assistive devices and resources; stipulating conditions for professorial intervention [4].

The **debriefing-contemplation** technique has allowed to conduct a detailed analysis of errors committed by participants of an act of communication and then remedy the said errors. The most important components of a debriefing-contemplation are [7, p. 119]: ascertaining its

purpose and objective; analysing strengths and weaknesses of accomplished study assignments; analysing errors committed by students and summarising conclusions; applying pedagogical technique of mutual check of students' works by fellow students from their group; resorting to supplementary resources, materials, records, and observations; submitting case examples derived from personal experience of participants of the study groups; cautious professorial approach, fostering trust-based student-student and teacher-student relations; avoiding insensitivity in teacher's treatment of students.

The debriefing-contemplation technique has been used both within small groups (under the supervision of one of proactive and responsible students) and in a large group (under professorial supervision). Following the analysis and error correction in small groups under fellow students' supervision, one of the group participants offered his or her generalised presentation of the amended speech patterns and of the most common errors committed by students in a large group. Owing to the application of this technique, students were able to internalise the training package and to gain novel experience in terms of communication. In the course of work performed by students in small groups, the professorial role consisted in being a watchful observer of the process whereby the participants of small groups were analysing their errors; pinpointing the most common errors to be then showcased in the large group; correcting and accentuating summarised conclusions. In the event if the debriefing-contemplation technique was applied in a large group, the professorial role consisted in being the director of the process of error evaluation and accentuation of conclusions drawn thereof.

Another technique that has grown increasingly important in the context of outlining the strategies for communication on professional matters in a foreign language between future software engineers is the **technique of simulation** which we, as per P. Bambrough, construe as *a variety of didactic games providing for its interpretation as a reproduction of an actual 'conversing' between people. Its purpose is to build up a communicative reality in the process of training* [12, p. 16]. Its key features are being informative, unpredictable, and spur-of-the-moment.

Simulation is *a technique used to teach a foreign language in a way allowing the students to pursue free and unregulated communication activity in a small group (traditionally comprised of three or four persons).* A simulation does not have a predefined scenario; students are not 'playing roles' of this kind or the other and do not present themselves as someone else (as is the case, for instance, in a business-focused or role-playing group) [13]. One of the most important challenges faced by the technique of simulation as it is applied to outline strategies to be used by the students in the course of communication on professional matters in a foreign language is to equip the students with proper speech patterns and speaking tools, phrases that will be of good use and will help present the spoken material in a neat and comprehensive fashion. Must-have *components of simulation* as a variety of communicative and game-playing training techniques are: *simulated environment, clear perception and awareness of the communicative setting; realistic comprehension of functions and roles played by persons participating in the simulation* [14, p. 5]. In order to make due arrangements for a successful simulation, one needs to apply visual resources, tangible facilities and/or perceived circumstances to 'immerse' students into unexpected and non-generic communicative situations wherein actual communication is set to unfold in an spontaneous mode [14, p. 5]. A professor should therefore remain creative and flexible in his or her approach, as s/he is responsible for ensuring that proper study package and resources are in place and that communicative interaction between students and their professor, between fellow students in a small group, and between students and resources they operate is proceeding in a meaningful way, yielding high performance. Efficacy of simulations applied in the process whereby strategies are being outlined for communication on professional matters in a foreign language is ensured owing to the students' readiness to engage in

communication within the framework of rigidly defined topic, to accurately follow the instructions issued, to comply with rules pertaining to simulation settings, and to attain the objectives of the act of communication through application of the strategies for communication on professional matters in a foreign language [15, p. 51–53]. In the course of simulations, students have been exchanging opinions, discussing issues, assuming certain roles, and attempting to fulfil certain duties. They were instructed to get themselves immersed in a certain event; to fulfil certain functional duties assigned to them as participants of a communicative event and to attain the objective of the said act of communication by resorting to efficient evaluation, selection, and implementation of communicative strategies. One ought to accentuate major particulars of the environment, thereby ensuring that the participants 'immerse' in a communicative event. Judging from our experience of application of the simulation technique in practice, we may assert that it has proved to be the most efficient technique for those groups that are comprised of students showing advance, self-sustainable, and borderline levels of maturity of strategies applied for communication on professional matters in a foreign language.

3. RESULTS AND DISCUSSION

It is our opinion that one of the paramount factors impacting the outlining of strategies for professional foreign language communication is personal interest which the future specialists have in the process of mastering a foreign language. In order to ascertain the level of personal interest in a foreign language among students, we have conducted a questionnaire survey focusing on 1st and 2nd year students of the Faculty of Mathematics and IT Technologies at Ivan Franko National University of Lviv (Ukraine).

Sampled audience was subdivided into an Exposure Group (EG) and a Reference Group (RG). Representativeness of the sample in the subject experiment was ensured by including nine pairs of academic groups comprised of students attending Lviv Ivan Franko National University (Ukraine) in the intramural (on-campus) mode of study (totalling 198 participants in EG and 202 participants in RG). The experiment's duration was 2 years of study (that is, academic years 2015-2016 and 2016-2017). In the Exposure Groups, students were mastering the discipline entitled Foreign Language with PC-oriented network technologies (including online-chat based learning) and communicative and game-playing techniques (such as briefing, debriefing-contemplation, and/or simulation). In the reference groups, the process of studying was taking place in line with the conventional methodologies used to teach foreign languages at universities to students of non-linguistic faculties (grammar-translation, textual-translation, partially-audiovisual and suchlike).

We have gauged the index of students' personal interest in studying a foreign language according to the formula presented below:

$$I = \frac{a(+1) + b(0,5) + c(0) + d(-0,5) + e(-1)}{N}$$

where *a* stands for total number of students showing the highest degree of personal interest in studying a foreign language;

b — stands for total number of students showing a moderate degree of interest;

c — total number of students showing no attitude with regard to the matter in question;

d — total number of students showing low degree of personal interest in studying a foreign language;

e — total number of students showing very low degree of personal interest in studying a foreign language;

N — total number of students sampled within the subject experiment [16, p. 166].

The results of the abovementioned polling are provided in the summarised Table 1 below.

Table 1

Determining index of personal interest in outlining strategies for communication on professional matters in a foreign language among 1st and 2nd year students of the Faculty of Mathematics and IT Technologies

Appraisement by Students	Number of replies/ratio of replies in a certain category as part of the total number of replies (%)			
	1st year (EG)	1st year (RG)	2nd year (EG)	2nd year (RG)
Very interested (*a*)	69/34.8%	75/37.1%	136/68.7%	106/53%
Moderately interested (*b*)	92/46.6%	90/44.5%	50/25.3%	73/36.5%
Ambivalent (*c*)	27/13.6%	30/14.8%	7/3.5%	12/6%
Hardly interested (*d*)	10/5.0%	7/3.5%	5/2.5%	9/4.5%
Not interested at all (*e*)	0/0%	0/0%	0/0%	0/0%
Index of Personal Interest	**0.60/60%**	**0.63/63%**	**0.82/82%**	**0.73 /73%**
Total number of students polled (*N*)	198/100%	202/100%	198/100%	200/100%

In order to ascertain changes in RG and EG students' attitude towards studying of a foreign language for professional communication with the assistance of IT technologies, we have gauged their interest in the matter twice (prior to the experiment and then after its completion). The 1st year EG students showed an index of 0.60 (i.e., 60 %).

The 2nd year students show positive changes caused by the fact that online-chat based training and communicative & game-playing techniques were introduced in the process of training, in order to outline strategies for communication on professional matter in a foreign language. These techniques demanded that we use instruction workbooks, modern pedagogical technological tools, elaborate assignments for test evaluation of proficiency for thematic modules etc. The index of personal interest increased to 0.82 (=82%) among 2nd year EG students, yielding a +22% dynamic pattern.

Index of personal interest among 1st year RG students was 0.63 (63%), pointing to the fact that they had a slightly better baseline level of language proficiency and a slightly better vision of how they might put their language proficiency to good use in the future. The index of personal interest among 2nd year RG students also increased (to 0.73, i.e. 73%, yielding a +10% dynamic pattern), albeit it was not so significant an increase as compared to the EG students.

As one may see by referring to Table 1, 68.7 % of 2nd year EG students and 53% of RG students have shown the highest degree of interest in mastering strategies for communication on professional matters in a foreign language. At the same time, 6% of EG respondents and 10.5% of RG respondents have declared that they were ambivalent and/or not interested in mastering strategies for communication on professional matters in a foreign language. Such attitude may be caused by certain personal reasons — that is, by the fact that certain students lack diligence in their education; have a low or a very low baseline degree of proficiency, skills and/or abilities as far as foreign languages are concerned; as well as by the fact that there are certain students who approach their education as a formality not worth putting proper effort into.

Judging from our academic research and pedagogical experience, introduction of components of IT technologies into the process of training and merging them — in a rational way — with conventional methods of training brings clear benefits to the process of mastering of a foreign language, specifically: it enhances the cognitive capacities of students

as far as mastering of a foreign language is concerned; it urges them to active study without supervision; it provides a technological basis for the process of training; and it helps present the training package by applying modern tools of instruction and training.

4. CONCLUSIONS AND FOLLOW-UP RESEARCH

The results of the study thus conducted enable us to come to the following conclusions. We have ascertained the contents of the following notions: '*strategy for professional foreign language communication*', '*virtual teaching and learning environment*', and '*online teaching techniques*'. We have made a selection of texts obtained from online sources (websites of major IT companies, specialised journals and periodicals etc.) and elaborated a system of exercises and tasks which helped us ensure the efficacy of the process of outlining strategies for professional foreign language communication between future IT specialists.

We have implemented the process of communicative and game-playing technologies, specifically: briefing, debriefing-contemplation, simulation in conjunction with network-oriented PC-based technique of online chat-learning which has led to an enhancement of the efficacy of the process of outlining strategies for communication on professional matters in a foreign language between future software engineers. Having interpreted the results of questionnaire survey, we have been able to prove that the abovementioned training techniques do prove to be efficient.

We have compiled methodological guidelines to be issued to foreign language teachers at universities outlining best practices to organise training and help future software developers outline their strategies for professional foreign language communication; besides, we have put together a training toolkit entitled *IT Student's English Handbook* [17] showcasing a great number of options for online (Internet-based) simulations. We have proved that introduction of PC-based online-chat training technique, taking into account all of the abovementioned factors of positive impact upon the process of teaching students is a most efficient approach helping future software engineers outline their strategies for professional foreign language communication.

Nonetheless, our study is not exhaustive as far as all of the aspects of the academic research problem in question are concerned. Particulars pertaining to the outlining of a strategy for professional foreign language communication for future specialists of other profile and development of corresponding methodological guidelines for specialists from other areas may be the object of future academic studies into adjacent segments of research in the same area.

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ВІРТУАЛЬНЕ НАВЧАЛЬНЕ СЕРЕДОВИЩЕ У ФОРМУВАННІ СТРАТЕГІЙ ІНШОМОВНОГО ПРОФЕСІЙНО ОРІЄНТОВАНОГО СПІЛКУВАННЯ МАЙБУТНІХ ІНЖЕНЕРІВ ПРОГРАМНОГО ЗАБЕЗПЕЧЕННЯ

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Анотація. У статті обґрунтовано й апробовано комплекс комп'ютерно орієнтованих і мережевих технологій (зокрема – онлайн чат-навчання) та комунікативно-ігрових технологій (брифінгу, дебрифінг-рефлексії, симуляції), що сприяють формуванню у майбутніх програмістів стратегій іншомовного професійно орієнтованого спілкування. Уточнено структуру та зміст ключових понять дослідження «стратегія іншомовного професійно орієнтованого спілкування», «віртуальне навчальне середовище», «технологія онлайн чат-навчання»; розроблено систему вправ і завдань для формування у майбутніх фахівців вищезазначених стратегій з використанням Інтернету. *«Стратегію іншомовного професійно орієнтованого спілкування»* трактуємо як сукупність поетапних мисленнєво-мовленнєвих дій, спрямованих на моделювання учасниками комунікації власної комунікативної поведінки у контексті іншомовного професійного орієнтованого спілкування з метою реалізації комунікативної мети у процесі спілкування. Перевірено індекс зацікавленості знань студентів до вивчення іноземної мови професійно орієнтованого спілкування. З метою виявлення рівня зацікавленості студентів іноземною мовою проведено анкетування студентів першого та другого курсів факультету математики та інформатики Львівського національного університету імені Івана Франка. Сформульовано методичні рекомендації для викладачів іноземних мов щодо організації навчання, спрямованого на формування у майбутніх програмістів стратегій іншомовного професійно орієнтованого спілкування та розроблено навчальний посібник «IT Student's English Handbook», що

містить велику кількість симуляцій з використанням Інтернету. Інтерпретація результатів анкетування дозволила довести перспективність вищезазначених технологій навчання.

Ключові слова: віртуальне навчальне середовище; інформаційні технології навчання; стратегії іншомовного професійно орієнтованого спілкування; майбутні інженери програмного забезпечення.

ВИРТУАЛЬНАЯ УЧЕБНАЯ СРЕДА В ФОРМИРОВАНИИ СТРАТЕГИЙ ИНОЯЗЫЧНОГО ПРОФЕССИОНАЛЬНО ОРИЕНТИРОВАННОГО ОБЩЕНИЯ БУДУЩИХ ИНЖЕНЕРОВ ПРОГРАММНОГО ОБЕСПЕЧЕНИЯ

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Аннотация. В статье обоснован и апробирован комплекс компьютерно ориентированных и сетевых технологий (в частности - онлайн чат обучения) и коммуникативно-игровых технологий (брифинг, дебрифинг-рефлексия, симуляция), способствующие формированию в будущих программистов стратегий иноязычного профессионально ориентированного общения. Уточнено структуру и содержание ключевых понятий исследования «стратегия иноязычного профессионально ориентированного общения», «виртуальная обучающая среда», «технология онлайн чат обучения»; разработана система упражнений и заданий для формирования в будущих специалистов вышеупомянутых стратегий с использованием Интернета. «*Стратегию иноязычного профессионально ориентированного общения*» определяем как совокупность поэтапных мыслительно-речевых действий, направленных на моделирование участниками коммуникации собственного коммуникативного поведения в контексте иноязычного профессионального ориентированного общения с целью реализации коммуникативной цели в процессе общения. Проверено индекс заинтересованности знаний студентов к изучению иностранного языка профессионально ориентированного общения. С целью выявления уровня заинтересованности студентов иностранным языком проведено анкетирование студентов первого и второго курсов факультета математики и информатики Львовского национального университета имени Ивана Франко. Сформулированы методические рекомендации для преподавателей иностранных языков по организации обучения, направленного на формирование в будущих программистов стратегий иноязычного профессионально ориентированного общения и разработано учебное пособие «IT Student's English Handbook», содержащее большое количество симуляций с использованием Интернета. Интерпретация результатов анкетирования позволяет доказать перспективность вышеупомянутых технологий обучения.

Ключевые слова: виртуальная обучающая среда; информационные технологии обучения; стратегии иноязычного профессионально ориентированного общения; будущие инженеры программного обеспечения.