

**Ministry of Education and Science of Ukraine
H. S. Skovoroda Kharkiv National Pedagogical University**

**Educational Studios:
Theory and Practice**
Monograph

Prague-Vienna – 2018

3.17. ORGANIZATION OF COMMUNICATIVE INTERACTION BETWEEN SUBJECTS OF EDUCATIONAL PROCESS IN HIGHER EDUCATION INSTITUTIONS VIA QR-CODES

UDC 378.147: 004

F. Mainaiev, L. Rybalko

Abstract. *The article considers the communicative interaction between the teacher and students as a dynamic process which involves the transmission and understanding the educational information between subjects. The ways of organizing communicative interaction are determined with the help of information and communication technologies in the process of teaching students of the general and humanitarian nature by providing convenient and easy access to educational information; providing feedback between participants of the educational process; online training activities support. The use of QR-codes as an integration tool has been analyzed and the access to educational information between the teacher and students was provided. Learning objectives using QR-codes are presented: quoted beginning of the question, color option, onlineworking with historic text, clue code, secret message.*

Key words: *information and communication technologies, communicative interaction, communication, communicative channel, QR-codes, feedback.*

Relevance of the study the organization of communicative interaction between the teacher and students via QR-codes is based on the fact that this method of information and communication technologies is convenient and available channel for transferring educational information to all participants in the educational process. Considering the didactic potential of QR-codes offers broad prospects in education, in particular for improving communicative interaction in the class.

Recent publications analysis has showed high priority by the domestic scientists to the issue of communicative interaction between participants in the educational process. Considering various ways of its organization, researchers [1-4] agree that the educational process effectiveness depends on involvement of its subjects.

According to G. Moskalyk [1] the organization of pedagogical interaction depends on the achievement of desired results, the comfort of pedagogical process. To create a situation of interaction is necessary: an active inclusion of all participants of an educational process in the discussion and implementation of actions for making decisions on different stages of the organization of interaction; receiving constant feedback; research position of all subjects of an educational process; partnership of training participants. S. Ridkozubova [2] emphasizes that the organization of pedagogical communicative interaction is one of the conditions for improving the quality of students' professional training. Analyzing an own experience of communicative interaction organization with foreign students, the researcher draws attention to the use of interactive teaching methods in the

educational process.

Despite on the growing role of ICT in the educational process of higher education institutions the question about communicative interaction organization with their help is not sufficiently highlighted in the scientific pedagogical literature, although there are such developments. So, N. Tverezovska, O. Borisyuk [5] define pedagogical interaction with help of ICT as a process of joint activity of a learning process subjects. Scientists note that the use of electronic network educational resources and technologies of interaction in an information environment by the participants of educational process is normal. The electronic network environment is perceived and understood as a part of an informational educational space.

Over the past five years there have been publications of domestic scientists who are considering the possibilities of QR-codes in higher education. So, K. Bugaychuk [6] connects QR-codes with the app-model of mobile learning. This model focuses on smartphones, whose software provides users with the ability to scan QR codes. O. Voronkin [7] notes that QR-codes make classes more effective and interesting. Students can conveniently read information and quickly store it in a memory of mobile devices. This approach allows to use an additional (tactile) channel for the perception of learning information.

The purpose of the article is to consider the characteristics/features of the organization of communicative interaction between the teacher and students using QR-codes at the discussion seminar.

Research methods. Realization of the goal was carried out with help of textual analysis of scientific literature, related on the subject, and the pedagogical experiment.

The presentation of the primary material is considered to use a definition 'communicative interaction'. Scientific achieve sources also use definition 'communication' [1] and 'communicative interaction' [2-4]. The base for these definitions is paronymous token 'communication' and 'communicativeness'. Communication is a connection which enables the information exchange process, while communicativeness is the ability to communicate. The definition 'interaction' is determined by the authors of scientific papers as a system of conditional actions, where each action has a corresponding feedback [3, p. 58]. Therefore, the interaction between the participants can be regarded as a number of actions aimed to obtain the desired result. Since we consider ICT for providing with its help the communication to receive relevant information by students, the appropriate use of the term 'communicative interaction', which as we see is a dynamic process of information exchange between subjects that forms their message, transmission and understanding. The use of ICT in the learning process has created new forms of communicative interaction: 1) teacher – ICT facilities – student/students; 2) student – ICT facilities – student/students. In this case, the link between the subjects of the interactive dialogue are hardware, software, network tools or their combination, which are objects of interaction in communicative chain. The effectiveness of ICT depends on the organization of communicative interaction, which is based on communication; students and teacher readiness; communicative situation which predicts the clarity and accuracy of the interaction, educational information relevance and value for

students, adaptation of interaction with learning conditions, inclusion in the activities of all participants in the learning process. Therefore, teacher's task is to choose the optimal guide into an information world among the existing ICT tools, which include QR-codes - a creative and at the same time convenient access for students to the necessary training information. QR abbreviation in literal translation from English means 'quick response'. QR-codes are matrix (two-dimensional) code which contains any text combination that consists of numbers and characters, and allows you to encrypt 7089 numbers, 4296 symbols, 1817 hieroglyphs. The main advantage of using QR-codes is the easy identification by unprofessional equipment [7].

In the scientific-pedagogical literature [7-8] the use of QR-codes is considered for purposes such as: providing access to supporting applications (a link to multimedia sources and resources) accompanied by presentation slides; textbooks and additional information guides; information notes (class schedule, learning outcomes); students' identification in the virtual library classroom; attachments quality of educational objects (on the mechanism pieces, schemes, anatomical objects, maps; using in the tasks (current knowledge progress); assignments support; didactic crossword design; creation of portfolios, summaries, annotations, business cards by students; participants contact information on the badges in the educational process, various events, conferences in particular.

We consider QR-codes as the link to access the information which is a base for students to complete their training exercise. QR-code is the object of interaction which involves coding by the teacher and decoding by students. This ICT networking tool doesn't require any informative skills (coding requires to enter the desired text or URL while decoding is to align the camera to the code). There is neither high cost (using services coding is free because QR-codes are not licensed), nor high time commitment (to create 1 code takes less than 1 minute). Besides storing text data and links, creation and recognition speed, resistance to damage, reproducibility on any surface, QR-codes have another useful learning feature - reading small texts regardless of the Internet.

Thus, using QR-codes in the classroom creates a new communicative channel: teacher - QR-codes - students. Using as a basis structure of interaction proposed by V. Sergeeva [3, p. 59] we defined the following functions of communicative interaction 'teacher - QR-codes - students': constructive - based on motivating students to perform the tasks, explaining its point; supportive - the task is to provide technical support for learning activities; and communicative, which provides necessary training information.

Let's take certain examples of QR-codes practical use during seminars with History Department students of H. S. Skovoroda Kharkiv National University.

1. Quotation at the beginning of the question. The task is to decode information (quotes) and to prove the thesis referring to historical facts. At the discussion seminar on 'The History of the Slavs' with the topic 'Second World War (1939-1945); first year students were offered to read/find hidden expression in the QR-code of E. Hemingway and to suggest American author further ideas by confirming it with actual examples from the Second World War history.



Fig. 1. The encoded expression of E. Hemingway

Fig. 1 shows QR-code example that contains the statement by E. Hemingway: 'Never think that war, no matter how necessary, nor how justified, is not a crime,' which is the beginning of the question.

2. Working with historical text online. At the discussion seminar 'The History of the Slavs' with the topic 'The Second World War (1939-1945)', the first year students had to consider the creation of an anti-Hitler coalition. They had to decode Churchill personal messages to Stalin, dated July 8 1941 and July 10, 1941, and referring to the historical document give examples of Britain support to the Soviet Union and determine what commitments were made by both parties. Task visualization is presented in fig.3.



Fig. 2. Historical document link

3. Colored option. Student is offered a set of color-coded cards then chooses to use only one. Colored QR-codes enhance learning process and make tasks more appealing to students. In addition, with colored QR-codes you can design different variants of one task. During the discussion seminar with the third year students about the new history of Europe and America (1870-1918), and the topic

'Britain during the last third of the nineteenth and early twentieth centuries' encoded information could be, for example statements by W. Gladstone and B. Disraeli (British politicians of the 'Victorian era'). According to the principle of 1 color is 1 statement (blue – 'There are three kinds of lies: lies, damned lies, and statistics' (B. Disraeli), red – 'Public opinion rather deserves to be called public feelings' (B. Disraeli), yellow – 'It is the duty of government to make it difficult for people to downrong, easily to do right' (W. Gladstone). The task was to decode information, and also to use it formaking a campaign speech on B. Disraeli or W. Gladstone behalf. There is encoded statement (fig. 2) by the leader of the Liberal Party William Gladstone 'Politics is a labyrinth from which to get out heavier than enter'.



Fig. 3. Encoded statement by William Gladstone

4. Clue code. The encoded information is a question, and there is also the clue which you can find on the visual QR-code design: photo, drawing, logo or keyword that directly or indirectly prompts students the correct answer. For example, during the history of the Slavs seminar on the theme 'New government experiments in 1920-1930', the first year students were required to decode the expression, and to determine what was being discussed.



Fig. 4. Encoded statement about collectivization by J. Stalin

Fig. 4. shows a QR-code with the clue. The decoding of it allows to read J. Stalin words 'Attacking the kulaks means to break the kulaks spirit and eliminate it as a class ... Attacking the kulaks means to get ready and destroy the kulaks, so they will never get up again'. This task looks engaging and attractive for students, but while creating such QR codes there is a risk of unreadable format, so such coding must be checked up in advance.

5. Secret message. This training task involves students into coding certain information (a little-known fact in the history, a creative question, etc.). This task prepares students who are future history teachers to use QR-codes in their future professional activity.

Described tasks don't exhaust all QR-codes options, they only show their potential while studying. QR-codes influence on communicative interaction objects is indirect. Feedback, which proves the effectiveness or ineffectiveness of communicative interaction, is subjective and 'report' students about the result of their own work.

In pedagogical science [6] the feedback is defined as a way of obtaining information about the right or wrong action. During the lesson about using QR-codes, the feedback of work result can be obtained from the computer program – the network service called Class Tool allows you to create QR-codes test tasks. In addition to the usual subjective communication, new connection appears – program-subjective. However, in our opinion, the program-subjective communication is only an addition to the subject communication between the participants of educational process. Feedback functions can't be limited just by control and knowledge input: it is also an indicator of students' willingness for new lesson, their mental attitude towards studying.

Using QR-codes requires proper technical support for using the Bring Your Own Device. BYOD technology is the active use of students' devices in the learning process. The attitude to the use of mobile devices in education was ambiguous. The Order of the Ministry of Education and Science № 420 from 24.05.2007 'About the use of mobile phones during the educational process' in paragraph 1 clearly prescribed an official restriction to use a mobile phones in general education and vocational and technical institutions. The spread of mobile education has forced most scientists to recognize the mobile devices as a powerful learning tool [10].

Conclusions and results. The experimental work results confirmed our hypothesis about effectiveness of using QR-codes at the discussion seminar. The research allows to conclude that the communicative interaction between teacher and students during learning process is a number of subjective actions aimed to get the knowledge. It also gives access into information resources and feedback on the provided information. The effectiveness of communicative interaction through QR-codes is achieved by providing students easy and convenient access to relevant information; enabling high-quality feedback among all participants; learning online support by using mobile devices.

Recommendations for further research are aimed on developing tasks using QR-codes which are creative and contribute the intellectual development of students.

Література

1. Москалик Г. Ф. (2013). Комунікаційна взаємодія суб'єкта й об'єкта освітнього процесу. *Нова парадигма*, 114, 98 – 105.

2. Рідкозубова С. (2015). Організація педагогічної комунікативної взаємодії викладача зі студентами-іноземцями вищих технічних навчальних закладів. *Витоки педагогічної майстерності*, 16, 238 – 244.

3. Сергеева В. (2015). Педагогічна комунікативна взаємодія в системі «учитель-учні» та її виховна цінність в умовах спільної творчої праці. *Педагогічний часопис Волині*. Луцьк : Вежа-Друк, 1, 57–63.

4. Старовойтенко Н. В., Лещинський О. П., Рига Т. М. (2014). До проблеми педагогічної комунікативної взаємодії викладача зі студентами в умовах навчально-виховного процесу вищого навчального закладу. *Наукові записки Національного університету «Острозька академія»*. Серія : Психологія і педагогіка, 27, 141–144.

5. Тверезовська Н. Т., Борисюк О. Б. Інформаційні технології в освіті. (б. д.). Узято з http://ir.znau.edu.ua/bitstream/123456789/7946/3/NVNUBP_2012_175_239-247.pdf

6. Бугайчук К. (2012). Мобільне навчання: сутність і моделі впровадження в навчальний процес вищих навчальних закладів МВС України. *Інформаційні технології і засоби навчання*, №1 (27).

7. Воронкін О. С. (2014). Можливості використання системи QR-кодів у вищій школі. *FOSS Lviv 2014* : зб. наук. пр. IV Міжнар. наук.-практ. конф., Львів, 24 – 27 квітн. Львів.

8. Єчкало Ю. В. (2014). Елементи мобільного навчального середовища. *Новітні комп'ютерні технології*. Кривий Ріг : Видавн. центр ДВНЗ «Криворізький національний університет», XII, 152 –157.

9. Муліна Н. І. (б. д.). Організація ефективного зворотного зв'язку в дистанційному навчанні іноземних мов. Узято з <http://qoo.by/3Z6C>

9. Майнаєв Ф.Я. (2018). Мобільні пристрої у вищій школі. Педагогічні науки, 79

Bibliography

1. Moskalyk, H. F. (2013). Public interaction between subject and object of the educational process. *Nova paradyhma – The new paradigm*, 114, 98 –105.

2. Ridkozubova, S. (2015). The organization of pedagogical communicative interaction between a teacher and foreign students of higher technical universities. *Vytoky pedahohichnoi maisternosti – Sources of pedagogical skills*, 16, 238 – 244.

3. Serheieva, V. (2015). Pedagogical communicative interaction in the system 'teacher-learners' and its educational value in conditions of joint creative work. *Pedahohichniy chasopys Volyni – Pedagogical magazine of Volhynia*, 1, 57– 63. Lutsk, Ukraine: Vezha-Druk.

4. Starovoitenko, N. V., Leshchynskiy, O. P. & Ryha, T. M. (2014). The problem of teaching communicative interaction between teacher and students in terms of the educational process of higher education institution. *Naukovi zapysky Natsional'noho universytetu «Ostroz'ka akademiya» – Scientific notes of the National University of Ostroh Academy. Seriya : Psykholohiia i pedahohika*, 27, 141–144.

5. Tvezovska, N. T. & Borysiuk, O. B. (2012). Information technologies in education. Retrieved from http://ir.znau.edu.ua/bitstream/123456789/7946/3/NVNUBP_2012_175_239-247.pdf.

6. Buhaichuk, K. (2012). Mobile learning: essence and models of introduction in education process of higher education establishments MIA of Ukraine. *Informatsiini tekhnolohii i zasoby navchannia – Information technologies and teaching aids*, №1 (27).

7. Voronkin, O. S. (2014). Possibilities of using QR-codes at high school. *FOSS Lviv 2014 : proceeding of the Scientific and Practical Conference* (pp. 145 – 149). Lviv, Ukraine.

8. Yechkalo, Yu. V. (2014). Elements of a mobile learning environment. *Novitni kompiuterni tekhnolohii – Newest Computer Technologies*, XII, 152 – 157. Kryvyi Rih, Ukraine: Vydavnychyy tsentr DVNZ «Kryvoriz'kyy natsional'nyy universytet».

9. Mulina, N. I. *Company feedback in distance learning foreign languages*. Retrieved from : <http://qoo.by/3Z6C>.

10. Mainaiev, F.Ya. (2018). Mobile devices in higher school. *Pedahohichni nauky – Pedagogical Sciences*, 79.

3.18.GROUNDING OF THE PEDAGOGICAL CONDITIONS IN THE FORMATION OF PROFESSIONAL READINESS OF FUTURE LAW ENFORCEMENT OFFICERS OF UKRAINE TO WORK IN EXTREME SITUATIONS

UDK 378.017:351.74-057(477)

Bilous T.L.

Abstract. The author of the article has analyzed the process of grounding the pedagogical conditions for the formation of professional readiness of future police officers of Ukraine to work in extreme situations; has clarified the need to improve their training in modern conditions of Ukraine. The theory and practice of the problem of grounding the pedagogical conditions of the formation of professional readiness of future police officers of Ukraine to work in extreme situations have been analyzed; the essence of the concept of “professional readiness of future police officers to work in extreme situations” and its structure have been also analyzed; the essence of extreme situations of police officers activities has been revealed, their author’s classification has been provided; the author has developed and experimentally tested a complex of pedagogical conditions for the formation of professional readiness to work in extreme situations in higher educational institutions of the Ministry of Internal Affairs of Ukraine: 1) organization of methodical work with the professors of departments of higher educational institutions of the Ministry of Internal Affairs of Ukraine on their