

# Interactive Methods in Teaching of the Elective Discipline “Fundamentals of Patent Law” as an Element of the Legal Education of Future Doctors

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## ABSTRACT

This article is devoted to the consideration of interactive tests and games in teaching of the elective course “Fundamentals of Patent Law” (FPL). This discipline is aimed at training specialists of the second (master's) level of higher education, the branch of knowledge – 22 “Health Care”, specialty – 222 “Medicine”. “Fundamentals of Patent Law” is intended to develop in future professionals the skills of legal regulation of intellectual property, application of basic regulations in the field of intellectual property, and to study the role and significance of intellectual activity in modern society. Fundamentals of patent law, intellectual property, and technology transfer determine peculiarities of intellectual property application in medicine, namely copyright, and related rights, patent law, the right to the secret of production, the right to individualization of legal entities, goods, works, and services, the right to use intellectual activities as part of a single technology, legislation on the protection of rights over the results of intellectual activity and individualization means; main ways of using intellectual activity as an additional source of financial resources of economic entities, types of liability for violation of rights over the results of intellectual activity. In addition to involving in practice for the training of future doctors a professional-oriented methodology for teaching FPL and the development of an educational-methodical complex aimed at providing didactic support for all types of educational and cognitive activities teachers analyzed the modern system of interactive techniques and related methods. This article reveals some proven interactive techniques based on the Quizizz platforms.

**Keywords:** Academic Subject Curriculum, Distance Learning, Elective Discipline, Intellectual Property, Interactive Methods, Patent Law.

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## I. INTRODUCTION

Modern scientific research and development lead to new original results that require protection within the legal field. To do this, it is necessary to master intellectual property skillfully (Ragavan & Vanni, 2021). The term “intellectual property” is firmly established in the legislative vocabulary of foreign countries, in the texts of international agreements and conventions, and is, of course, relevant on the territory of Ukraine as well (Fisher, 2007).

The elective discipline “Fundamentals of Patent Law” is offered to second year students in the branch of knowledge 22 “Health Care” of the second (master's) level of higher education, specialty 222 “Medicine”.

The purpose of teaching the elective discipline FPL is to prepare master's students who have a theoretical basis and practical skills in legislative foundations, such as: obtaining, transferring, protecting and protecting rights to intellectual property objects, in particular industrial property in Ukraine and the world. In addition, it is extremely important to acquire basic knowledge of the system of intellectual and industrial

property in invention and patent-licensing activities, protection of patent rights, international cooperation in the field of intellectual property, copyright and related rights, as well as the system of patent information; the ability to use regulatory and legal acts in practice to ensure legal protection of scientific and technical achievements and creative products, to conduct patent and information research in a certain field of technology, to find analogs and to issue applications for objects of industrial property. The main tasks of studying the elective course FPL are to teach the master's students the general principles of legal regulation of the process of protecting intellectual property objects; to reveal the practical aspects of patenting and their importance in medicine (Bogomolets National Medical University, 2022).

Modern realities force teachers to look for more effective methods of working with students. The global pandemic is associated with quarantine measures that are forcing universities, schools and other educational institutions to switch to distance learning (Bolotnikova & Pushkarova, 2021). Therefore, in addition to involvement in practice for the training of future doctors a professional-oriented

methodology for teaching elective disciplines and the development of an educational-methodical complex aimed at providing didactic support for all types of educational and cognitive activities (educational: lecture, laboratory, seminar and practical classes, independent work; scientific-research: individual creative tasks, projects, presentations, author's experiments, scientific publications), teachers of the department of analytical, physical and colloid chemistry analyzed the modern system of interactive techniques and related methods. Interactive learning is a set of pedagogical methods that include the use of social networks and various computer or online applications and programs during training sessions, which ensure effective learning of material and testing of knowledge. This article reveals some proven interactive techniques based on the Quizizz platform (Quizizz, 2022).

Game-based learning uses gaming technology to create a fun, encouraging, and collaborative virtual learning atmosphere for situated learning. Nowadays, many researchers believe that the game-based approach is the inspiration for today's entertainment-based students who learn more effectively through meaningful activities described in the game context rather than conventional didactic approaches (Dadure *et al.*, 2021). The ubiquitous presence of technology in classrooms has inspired a shift from traditional classroom lectures to integrated digital learning environments. These interactive learning environments present the opportunity to evolve the teaching process through the incorporation of game elements that have been shown to capture user attention, motivate towards goals, and promote competition, effective teamwork, and communication (Subhash & Cudney, 2018).

This article presents an example of interactive games as an effective form of learning for the students of medical faculty. Generally speaking, interactive learning is a pedagogical approach that includes social networks or any involvement in managed social interaction (Nafosat *et al.*, 2019; Sultanov, 2021; Aminov & Mirkhayitova, 2021; Maliataki *et al.*, 2020). Let's consider interactive games in the form of a quiz on the example of the elective course FPL for medical students. This discipline is extremely important for students of medical specialties because the timely and correct procedure for patenting medicines not only protects the rights of the manufacturer but also saves people's lives. However, this academic course is quite difficult, because it includes a huge number of references to laws, documents, and statements. Such things are not always interesting for science students. Therefore, the task of the teacher is to interest and attract students. In this case, an interactive game is a perfect way to achieve effectiveness in learning.

## II. METHODS AND MATERIALS

A set of methods was used in conducting this research and achieving the set objectives. The basis of this work was the use of theoretical methods, namely comparative and systematic, which consist in research and analysis of scientific and psychological-pedagogical literature. As an evidence base, empirical methods were used, which were pedagogical observations and systematization of pedagogical experience, as well as interactive testing and games. The main

material for the research was the academic subject curriculum of the elective course FPL (Bogomolets National Medical University, 2022).

### *A. Structure of the elective course "Fundamentals of Patent Law"*

In the 2021–2022 academic year, 120 study hours (4.0 ECTS credits) were allocated to studying the course "Fundamentals of Patent Law", of which were: 10 hours of lectures, 10 hours of practical classes, and 100 hours of independent work for students. The form of control is differential assessment. The proposed course included the following topics:

#### *1) General information about the intellectual property system*

Description of the intellectual property system. The concept of intellectual property rights, creation, and development of the intellectual property. Legal protection of intellectual property.

#### *2) Copyright and related rights. Legal protection of inventions and utility models*

Copyright and cultural development. Remuneration for an invention – the author's creative work. Objects of copyright and related rights. Protection of rights to inventions and utility models. Items that are not recognized as an invention. The inventive subject matter (utility model).

#### *3) Legal protection of industrial designs, trademarks, and patent applications*

Application for an industrial design patent. The period of validity of a patent for an industrial design. Trademarks for goods and services. Terms of legal protection are provided to a trademark for goods and services. The rights of the holder of the certificate of Ukraine to the trademark for goods and services.

#### *4) Legal protection of medicines and their manufacturing process, trade dress protection, protection of names and brand names, and other intellectual property items*

Device, substance, a strain of microorganism, cell culture of plant and animal, process (method). Application of a previously known product or method for a new purpose. Group of inventions. Utility model, conditions of patentability of the invention (utility model). The novelty of an invention. Inventive level. Industrial applicability, application for invention (utility model). Patent claim for an invention (utility model). The purpose of the patent claims for inventions (utility model) and claims requirements. The structure of the claims for inventions (utility model).

#### *5) Role of patent information and patent documentation in the development and creation of industrial property in medicine*

Sources of scientific and technical information. Contents of patent information. International patent classification. Reform of international patent classification.

#### *6) Peculiarities of patent research in medicine*

Patent information databases. Division of documentary sources of scientific information into primary and secondary. Characteristics of documentary sources of information in medicine: completeness and veracity. Special editions. The

content of patent information in medicine. Digital or alphanumeric INID code.

### 7) Intellectual property agreements

Types of agreements under which intellectual property rights in Ukraine are disposed of, including:

- i. intellectual property rights license;
- ii. license agreement;
- iii. intellectual property rights agreement in outsourcing;
- iv. agreement on the transfer of exclusive intellectual property rights;
- v. another agreement on the disposal of intellectual property rights.

### 8) Commercialization of intellectual property

The main ways of commercialization of intellectual property rights are the following:

- introduction of rights to intellectual property rights in the authorized capital of the company;
- transfer or sale of intellectual property rights;
- use of intellectual property rights in the own production.

### 9) International cooperation in the field of intellectual property

Active cooperation with WIPO. Protection of intellectual property rights, cooperation with non-governmental and civil society organizations. Creating a modern national system of the legal protection of intellectual property in Ukraine. International cooperation of Ukraine in the area of intellectual property

### 10) The international system of industrial property protection

Main tasks and principles of the World Intellectual Property Organization. Contracts for the protection of industrial property. Paris Convention for the Protection of Industrial Property. Washington Treaty on Intellectual Property in respect of Integrated Circuits. Trademark Law Treaty. Agreements that facilitate the protection of industrial property in several states and ratify international classifications.

#### B. Interactive Methods

There were 36 students enrolled in the elective course “Fundamentals of Patent Law” in the 2021–2022 academic year. Lectures and practical classes were conducted with students online using Google Meet technology according to the class schedule. As an interactive component, tests created using the Quizizz platform were used in the classes. In addition, the Likar\_NMU platform, which was created by the Bogomolets National Medical University with the help of Moodle tools, was used as the basis of distance learning (LIKAR\_NMU, 2022). The platform contained lecture material, methodical material for self-training of students, links to interactive tests and games, and motivating and interesting videos.

Interactive methods function as follows: in accordance with the plan (lesson card), the teacher “turns on” interactive elements (tests, games, videos, etc.) at the scheduled time, students must perform certain actions in accordance with the task protocol. The execution of these actions, as well as the transition from one operation (phase of the lesson) to another, is coordinated and controlled by the manager. The manager

sends, receives, and processes information, which allows him throughout the entire educational process to know what is happening at each stage of the technological chain and to be able to make timely corrections if necessary. Each action of each interactive element is aimed at obtaining a planned result.

For example, about ten interactive tests and games were held in each lesson of this discipline (Fig. 1). The topic of the questions and the choice of the structure of the game forms fully corresponded to the educational requirements and was based on the basic concepts, terms, and concepts presented in the academic subject curriculum of the course (Bogomolets National Medical University, 2022).



Fig. 1. The fragment of the interactive game of the discipline «Fundamentals of Patent Law» via Quizizz.

Discussion elements that arose during interactive testing were carried out in specially created groups in the Viber calling and messaging application.

Interactive methods in the discipline FPL are aimed at mastering the following competencies.

Integral competence is the ability to solve complex problems in research, innovation, and professional medical areas, to conduct original research on the basis of deep rethinking of existing and creation of new holistic theoretical or practical knowledge and/or professional practice with subsequent integration into the international scientific community through printed works. This type of competence is achieved by the possibility of introducing a large number of situational tasks, as well as using the case method (Bolotnikova, 2021) in interactive learning.

General competencies are:

1. Ability for scientific and professional development.
2. Ability to search, process, and analyze scientific information from various sources.
3. Ability to abstract thinking, analysis, and synthesis.
4. Ability to carry out analytical and experimental scientific activities.
5. Ability to communicate in a professional environment as well as with representatives of other professions in the national and international context.
6. IT skills in scientific activities, ability to search and critically analyze information.
7. Ability to adapt and act in a new situation, be critical, and be self-critical.
8. Ability to work in a team.
9. Ability to exercise own rights and responsibilities as a member of society, appreciate civil society values, and realize the need for its sustainable development, the rule of law, human and civil rights, and freedoms in Ukraine.

General competencies and skills of students are acquired and consolidated thanks to the detailed presentation of theoretical material while working with interactive tasks. In

addition, the involvement of so-called flipped lessons (Bolotnikova & Pushkarova, 2021). and the use of a spiral learning approach (Bolotnikova *et al.*, 2021) helps to reveal the essence of the discipline as effectively as possible and to provide students with the necessary general competencies.

Special (professional) competencies are:

1. Ability to define a research problem and its novelty.
2. Knowledge of modern methods of scientific research.
3. Ability to introduce new scientific information into science, education, and other spheres of society.
4. Ability to present research results orally and in writing in accordance with national and international standards.
5. Adherence to ethics and academic integrity.

Mastery of professional competencies remains the main goal in the teacher's work. In order to master special competencies, all previously listed techniques were included in the training, and, in addition, for the motivational component, videos submitted with the help of YouTube video hosting were used. These videos were selected in such a way that each student could not only understand the main goal of the course but also get a motivational charge for active further study, as well as highlight the main elements for the future profession.

### III. RESULTS

It is necessary to note the high activity of the students in each session, which was accompanied by a large number of clarifying questions and the discussion of various examples that are useful in the future activities of the students.

As a result of studying the discipline, students learned: the patent laws of Ukraine and the main resolutions of the Cabinet of Ministers, which regulate industrial property issues; procedures for compiling and submitting applications for inventions, utility models, industrial designs, and trademarks for goods and services; invention defining criteria; inventive subject matter; degree of significance (technical and economic) of the new technical solution in comparison with the patent family members; rights and obligations of authors and patent owners of industrial property in Ukraine; working procedure related to patent information; types of patent searches; official editions of invention agencies; research methodology at all stages of scientific, research and development work.

Students have proficiency: to use the laws of Ukraine on inventions, utility models, industrial designs, and trademarks for goods and services in cases of creation and use of new equipment and technology; to make a description of the inventions, which include descriptions of a method, device, substance, patent claims; to work with an array of patent information, conduct a patent search in accordance with the assigned theme of the graduation project (work) or individual task; to conduct patent searches in databases of Ukraine and other countries. Identification of possible subjects of patenting. Drafting invention application (utility model) according to the sample.

After completing the discipline, the students noted that the course was useful and informative for the formation of a qualified personality of a future doctor. The students especially noted such necessary acquired skills and

knowledge as the Patent Laws of Ukraine and the main resolutions of the Cabinet of Ministers, which regulate the issue of industrial property; rules for drawing up and submitting applications for inventions, utility models, industrial designs and trademarks for goods and services; patent search in databases of Ukraine and other countries; rights and obligations of authors and patent owners of industrial property in Ukraine.

### IV. CONCLUSION

The introduction of the optional discipline "Fundamentals of Patent Law" into the initial plan of training future doctors was logical and correct, because thanks to it, students acquire the necessary skills for the future profession of a successful doctor. The knowledge of fundamentals of patent law, intellectual property, and technology transfer is very useful for future doctors. This elective course is designed to develop the skills in the legal regulation of intellectual property in future medical workers. In addition, students learn to apply the main regulations in the field of intellectual property and study the roles and meanings of intellectual activity in modern society.

However, except for generally accepted approaches in education, interactive learning is the most effective means of forming professional competencies in students of higher educational institutions. Current trends in education require teachers to change approaches to classes, forms of student activity, and the principles of interaction between teacher and student. All these areas prepare the future specialist for all kinds of work. Nowadays, the teacher must instill in students the makings of leadership, competitiveness, creativity in solving problems, and so on. A teacher can use a huge variety of different methods and approaches that will help him achieve high results. The experience of introducing interactive games and tests into the elective course "Fundamentals of Patent Law" has shown that all types of skills and competencies are effectively mastered by students. This is due to the possibility of combining all known modern teaching techniques in one – interactive learning. So, the general competencies and skills of students are acquired and consolidated thanks to the detailed presentation of theoretical material while working with interactive tasks.

The main goal of the teacher's work is teaching professional competencies. As a reinforcing and motivational charge, special videos were included in the course, which, along with classical teaching methods, stimulated the development of professional skills. These short videos or podcasts are selected in such a way that each student can find something valuable for themselves, a solid basis for their future profession.

### CONFLICT OF INTEREST

Authors declare that they do not have any conflict of interest.

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