

# The place and role of intellectual property in education

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**Abstract** – Modern times place great emphasis on works created as a product of the intellectual work of individuals or groups. At the same time, there is an increasing abuse of both intellectual property rights and the degree of protection that intellectual property offers. The educational process as well as the scientific research work which is an integral part of the educational process in many cases form the basis for the emergence of new intellectual works. The acts thus created remain in most cases the intellectual property of the educational institutions within which they were created. The degree of protection introduced in this way is also a restriction for the people who worked to develop the work in question. It is for these reasons that the aim of this paper is to look at the position of intellectual property created in the education system, as well as the advantages and disadvantages of such works.

**Keywords** – Patents; Copyright; Textbooks; Teaching materials; Video lessons.

## I. INTRODUCTION

Intellectual property as a term is distinguished by two basic meanings. The first meaning of intellectual property is the legal meaning, while the second meaning is the economic meaning of intellectual property. The legal meaning of intellectual property is most often reflected in the legal provisions protecting intellectual property. Works created in this way are protected under pre-prescribed legal conditions, as well as pre-defined legal restrictions. Intellectual property rights can be divided into copyright, related rights and industrial property rights [1]. By international definition, copyright is a set of exclusive economic rights in original literary, dramatic, musical and artistic works and works of similar but more limited rights to sound recordings, films, TV and sound shows, printing arrangements of published editions of works, etc. Copyright also gives protection to the interpreters in their live performances. Related rights includes interpreters 'rights, phonogram producers' rights, broadcast producers 'rights and database producers' rights. Industrial property rights includes: patent, right to protect plant varieties, right to protect the topography of integrated circuits, trademark, right to protect design, as well as the right to protect the designation of geographical origin. Economic significance, on the other hand, is a broader meaning of intellectual property. The virtually economic aspect is property value that lies in a well-protected intellectual

property right. Such value of a good can be materialized and appropriated only if it is used economically well, regardless of the fact whether such work is legally protected or not.

Very often, intellectual property works are the result of scientific research work, theoretical or other forms of teaching, projects, and other activities within educational institutions. This emergence of intellectual property is particularly evident in higher education institutions. Higher education institutions due to the fact that they educate students and young people ready for innovative work, as well as the fact that teaching staff is engaged in scientific research, it is expected to create new works more than educational institutions belonging to primary and secondary schools education. The process of protecting such acts usually conducted by the services responsible for monitoring and providing legal advice to employees regarding the protection of intellectual property. Viewed from the perspective of the authors, not so rarely works created as a product of their work and efforts remain the property of the educational institution. In this way, consciously or not, great moral and economic damage is done to the authors themselves.

The paper is organized as follows. The second part lists the forms of intellectual property that are most represented as end products of work within educational institutions. The third part gives an overview of the ways of realizing the protection of intellectual property in higher education institutions, as well as the advantages and disadvantages of this way of realization. The fourth part of the paper summarizes the most important conclusions and ideas for further work. The last part of the paper is a list of used literature.

## II. FORMS OF INTELLECTUAL PROPERTY

The main objective of intellectual property rights is to achieve social development through inventions and innovations, but, unlike competition law, it is implemented in a different way. While competition law is based on an antitrust policy, in the intellectual property right that purpose of the general interest is achieved by monopoly protection of intellectual property holders [2]. Throughout their work and intellectual expression, authors create various works that can be protected by copyright and declared as works of intellectual property. The Law of Copyright and related rights<sup>1</sup> define

<sup>1</sup> The law on Copyright and Related Rights, "Official Gazette RS", no. 104/2009, 99/2011, 119/2012, 29/2016 - decision CC i 66/2019. Available at:

different forms of intellectual property. In terms of the work done within the educational institutions, some forms of intellectual swine can be distinguished.

Copyright is one of the basic and most commonly used forms of intellectual property protection. By international definition, copyright is a set of exclusive economic rights in original literary, dramatic, musical and artistic works and works of similar but more limited rights to sound recordings, films, TV and sound shows, printing arrangements of published editions of works, etc. Copyright also gives protection to the interpreters in their live performances. According to the Law on Copyright and Related Rights, a copyright work is an original spiritual creation of the author, expressed in a certain form, regardless of its artistic, scientific or other value, its purpose, size, content and manner of expression, as well as the permissibility of public communication of its contents<sup>2</sup>. A work of authorship of which at least two persons have participated is considered to be a co-author's work. It is very important for such work that the co-authors made a mutual contribution to the creation of their's work [3]. The shares of individual authors are determined in proportion to that contribution. Copyright consists of two components. The first component is moral rights, and these rights are related to the personality of the author. Moral rights cannot be transferred to other authors, nor cease to be valid after the death of the author. This practically means that it is impossible to define a time limit for moral rights. Another component of copyright is property rights. Property rights relate to economic profits derived from the use of a copyrighted work. Property rights can be transferred to other persons. In addition, unlike moral rights, property rights can be transferred to other persons, can be inherited after the death of the author, and are limited in time. The law defines that the duration of copyright is limited to the life of the author and seventy years after the death of the author.

With the development of the hardware and software industries as well as the development of digital media, new forms of copyright works have been created. Therefore, new technical inventions have led to a change and development of the concept and application of copyright. In this way, a new group of rights is created that is similar to copyright. This group of rights has been called related rights. As digital works can be created by applying different technologies into related rights, the rights of broadcast producers, database producers, print publishers, interpreters, phonogram producers, and videogram producers are classified. Related rights are also an expression of the original idea of the author. That is, they represent their original creation and are part of the intellectual creation of the author himself. The basic difference between copyright and property rights is reflected in who is considered the creator of the work. For related rights, unlike copyright, the creator of the work is not the author, but the business entity. An economic entity may be a natural or legal person who delineates the activity during which the particular act occurred. The only exception to this principle is an interpreter who is solely an individual.

[https://www.paragraf.rs/propisi/zakon\\_o\\_autorskom\\_i\\_srodnim\\_pravima.html](https://www.paragraf.rs/propisi/zakon_o_autorskom_i_srodnim_pravima.html)  
date: 18.05.2019.

<sup>2</sup> Ibidem, article 2, paragraph 1.

Industrial property is another intellectual property asset. Industrial property as well as related rights are a group of rights within which patents, design, trademark and geographical indication are classified. Different forms of industrial property have a great influence and importance, which is reflected in the development of companies that use new technologies to develop new products and thus become competitive in the market.

Patent systems exist in most countries and their purpose is to encourage the development of new technologies. Practically patent protected works allow the author to restrict the use of these works by other authors. Such protected work cannot be used unless explicitly approved by the author. The author of a patent protected work is also entitled to economic compensation by the patent beneficiary. Patents, by definition, are legal documents that enable the acquisition of a right to an invention, a product, a process that provides a new way of working or a technical solution to a problem. A patent grants an exclusive right for a fixed period of time in exchange for the patent being made public. It allows the owner / right holder to exclude an unauthorized person from the process of using, selling a patent or a product obtained in a patented process for the duration of the patent [4]. It is a well-known fact that a large percentage of successful authors owe their financial profits to strong patent protection. Potential problems encountered in patenting are related to the cost and complexity of the patent process. This is one of the reasons why some of the authors give up the idea of patenting their product. When it comes to the length of a patent, it is common for a product to be protected by a patent for 20 years. The author reserves this right if he pays the annual patent maintenance fee. The legal basis for a patent is defined through various theories. According to the theory of natural law (which is abandoned in modern times), the creator has a natural right to the results of his intellectual work, and society is morally obliged to recognize that right. According to the contract theory between the inventor and the company there is a contract on the basis of which the inventor publishes his invention, and the society ensures its use. Stimulation theory holds that, by granting a patent, society stimulates invention, which is a significant factor in global economic development, as well as a crucial element of competitive relations, while reward theory holds that the principle of fairness requires that every useful service rendered to society be rewarded [7]. In order for a invention to be patented, the basic requirement is that it represents a new technical solution to the problem. This practically means that the invention has to meet material conditions such as novelty, a certain level of innovation as well as industrial applicability. Novelty as a parameter is a time constraint and varies across countries. For example, in Serbia the novelty means that the technical solution should be without a time limit more precisely that it is permanently applicable, while in Germany and the USA the time duration is limited to the last 50 years.

Trademark as a form of intellectual property is a distinctive sign used as a form of identification of a particular good or service provided. Trademark as such occupies a place between producers and consumers, more precisely it creates a relationship of trust between the two entities. When it comes

to branding, there are two ways. The first way is the traditional one, and it uses some competing tags, phrases, letters, sounds, logos, etc. by some company. Another way is to register a trademark with the competent authority, which makes the mark legally a trademark. In this way, the mark becomes a trademark that can be valid indefinitely if it will be used and maintain properly. Therefore, a trademark associated with a popular name - branding can be of great value to the owner. Trademark approval and registration performs by the National Intellectual Property Office, with which it is applying. In the case of multinational coverage, a single application can be submitted for either an international trademark using the Madrid System at the World Intellectual Property Organization (WIPO) or for a communal or Community trademark (for protection in the EU) at OHIM. Trademarks do not protect ideas or the product itself, but allow better product recall in the market, which in the long run is a profitable investment [5]. The term of the trademark is ten years from the date of filing the trademark and can be renewed indefinitely. The international sources of trademark law are the Madrid Arrangement and the Protocol to the Madrid Arrangement, the Nietzsche Arrangement, the TRIPS Agreement, the Trademark Law Treaty from 1996, the WIPO Trademark Law Treaty, and Regulation No 207/2009 on Community Trademark [2]. Internal sources of law are the Trademark Act, the Law on Special Powers for the Protection of Intellectual Property Rights, the Customs Law and other laws.

Design protection is another type of industrial property. The basic characteristics of design rights are exclusivity, absoluteness as well as affiliation or property. It is especially important that the design right cannot protect the appearance of the product itself, which is determined by the technical characteristics of the product. In order for a design to be characterized as an industrial design and as such protection, it needs to satisfy two basic conditions: to be new and to have an individual character. The quality of the new design is reflected in its difference from the existing designs. Practically when evaluating a novelty, the basic design criterion is its similarity, or different from existing designs<sup>3</sup>. When comparing a design to an existing one, considerable diversity must be evidenced in order to designate it as new and to protect it. Design individuality as another significant parameter is the overall impression that one design leaves on the user or the consumer. In the registration process, industrial design also knows the right of priority. Priority right belongs to every applicant. The application for a new design shall be submitted to the competent authority of a Member State of the Paris Union or of the World Trade Organization<sup>4</sup>.

Industrial design bears great resemblance to trademark as well as copyright and works of applied art. Article 46 of the Law on the Protection of Industrial Design defines that the provisions of this Law shall not affect existing rights related to

trademarks or other distinguishing marks, patents or small patents, typographic signs, unregistered industrial designs, as well as the application of regulations governing civil liability or unfair competition. Industrial design protected under the provisions of this law shall enjoy the protection and on the basis of the law governing copyright from the date when the industrial design was created, or when expressed in a certain form.<sup>5</sup>

Another form of protecting the work gained through the use of new technologies and working to develop new technologies is trade secrets and know-how. Know-how is a term that originated in US commercial practice. This term, in its broadest form, is a set of technical and experience applications that can be applied in industrial or other manufacturing [6]. When it comes to knowledge and skills, know-how, unlike patent-pending invention, is protected by business secrets. In this way, all information of a technical nature that is protected by professional secrecy is not easily accessible. Trade secret means any information that is of commercial value because it is not generally known or accessible to third parties that could be of economic benefit to its use or communication and is protected by its holder by appropriate measures in accordance with law, business policy, contractual obligations or appropriate standards to safeguard its secrecy, which disclosure to a third party could harm the holder of the trade secret<sup>6</sup>.

### III. INTELLECTUAL PROPERTY AND OPEN SCIENCE

A large number of inventions, both those protected by intellectual property rights and inventions that are not protected by intellectual property rights, have arisen within the framework of research and projects led by people in higher education institutions. In addition to inventions, a large number of copyrightable works occur very often as the work of preparation and teaching. Very often, such acts are the result of intellectual work, creativity and additional employee engagement.

When looking at works created at higher education institutions, such works are often referred to as works of applicable intellectual property. Applicable intellectual property includes inventions, creations, innovations, as well as discoveries and improvements. Such works are the property of higher education institutions if they are obtained through the use of financial or material means of the institution. The exception in some cases are traditional works, learning materials as well as works created under a work contract.

Within educational institutions, an inventor is defined as a teacher or any other employee of a college or university, whether part-time or full-time, full-time or part-time, who creates or octaves applicable intellectual property of the University. Also the inventor is considered every visiting professor, researcher as well as each of the students. As the protection of a copyrighted work begins the moment it is transferred to one of the media, whether paper or more

<sup>3</sup> Forms of intellectual property rights, Available at: <http://www.zis.gov.rs/prirucnik-za-pronalazace/zastita-vase-ideje/oblici-prava-intelektualne-svojine.1064.html>, date: 20.07.2019.

<sup>4</sup> Industrial Design Legal Protection Act, "Official Gazette RS", no. 104/2009, 45/2015 i 44/2018. – other law. Available at: [https://www.paragraf.rs/propisi/zakon\\_o\\_pravnoj\\_zastiti\\_industrijskog\\_dizajna.html](https://www.paragraf.rs/propisi/zakon_o_pravnoj_zastiti_industrijskog_dizajna.html), date: 22.09.2019.

<sup>5</sup> *Ibidem*, član 46.

<sup>6</sup> Law on Protection of Business Secrets, "Official Gazette RS", no. 72/2011. Available at: [https://www.paragraf.rs/propisi/zakon\\_o\\_zastiti\\_poslovne\\_tajne.html](https://www.paragraf.rs/propisi/zakon_o_zastiti_poslovne_tajne.html), date: 20.09.2019.

recently digital media, it is up to the author to decide whether and how to protect his work. The author does not always doubtfully have the right to attribute the work to it, even if it is a moral aspect of the work. On the other hand, in order for the work to be published or copied and eventually distributed, the author is obliged to transfer his rights by contract to the publisher. By transferring the rights in order to protect the work, the author puts himself in a disadvantageous position, since even after the transfer of rights, the author cannot use his own results obtained through his work in teaching or publicly without the consent of the publisher. Very often, the author himself has to pay the publisher to get consent to further share his or her results with colleagues or students. Such a case is very common in practice. For example, large publishing houses have a clause in the contract that defines that the published version of a journal or manuscript should not be used by the author for any purpose. Although they are familiar with the content of the publication agreement, the authors have no alternative but to accept it in order for their work to receive the necessary protection. About 80% of copyright holders of all published works are publishers, while only 20% are authors. In this way, it is the publishers who can profit from the intellectual work of the author. In this way, the dissemination of knowledge remains limited to a certain circle of people.

Viewed from the angle of the University, works such as publications, papers in journals, review papers, monographs, books, brochures represent traditional works. Such works are evidence of the professional advancement or achievement of the authors themselves, and therefore all rights belong to the author. On the other hand, as previously stated, the free use of such works is often prevented by the publisher.

Work contracts represent works created at the University, at the discretion of the University, for University use, by persons within the scope of their contractual work tasks. For example, learning material is defined as a work that is created outside the contract of work and whose primary purpose is to convey to students for use in teaching. For example, learning material may include workbooks or textbooks. Likewise, any material created in the course of work at the University, such as creations, inventions, scraps or enhancements, is subject to intellectual property protection. Such protection is exercised by the University and the rights of the authors are voluntarily transferred to the University without expectation or compensation. Such material, for example, may be lecture notes.

Misuse of copyright, more precisely, abuse of the position of the employer is very common in the field of creation and use of teaching materials. For example, a number of higher education institutions require staff to prepare teaching materials in detail, both in the form of textbooks, teaching aids, and teaching aids. By publishing them and protecting them with a trademark or letterhead of a higher education institution, these works become the property of the institution. Practically in this way, the person who created the teaching materials by receiving a fee for creating them no longer has the right to the work that arose as his intellectual work. In practice, it is not uncommon for teachers who created teaching materials to be replaced, so that their materials are used by

someone else. Also created materials and teaching aids cannot be used in other higher education institutions. In this way, the freedom of the author and the free dissemination of knowledge are restricted.

Works created within educational institutions, all for the purpose of promoting science and education, are enshrined in the Copyright and Related Rights Act. Article 40 of this Law defines that in the case of the provision of original or duplicated works by public libraries, or other institutions intended for the public for which they are active, the author is entitled to just compensation. Leasing for the purposes of this Law is the giving of an original or a duplicate copy of a work for use by institutions intended for the public, for a limited period of time, without realizing direct or indirect material gain. However, exceptions to this article shall be originals and duplicated copies of library material in national libraries, public educational libraries and public specialized libraries, as well as originals or duplicated works of applied art or industrial design. Article 44 defines that it is permissible without the author's permission, as well as payment of a fee for the purpose of non-commercial use for the purpose of teaching, to publicly perform or present published works in the form of direct teaching. Public performance or presentation of published works at school events is also allowed, provided that interpreters do not receive a fee for their performance and that no fees are charged, as well as public communication of broadcast school broadcasts through technical devices within an educational institution.

Article 46 defines that a natural person is allowed to reproduce copies of a published work for personal non-commercial purposes without the author's permission and without payment of royalties. However, copies so reproduced shall not be marketed or used for any other form of public communication of the work. However, exceptions to the provisions of this Article shall be the recording of the performance, presentation and presentation of the work, the reproduction of written works throughout the volume of the book, unless copies of that book have been sold out for at least two years, and the reproduction of sheet music records, except for manual transcription. In this way, the works created as a product of the author's work within educational institutions are protected to some extent.

For the purpose of promoting science and the educational process, the Law of the Republic of Serbia defines by Article 55 that without the author's permission, and with the obligation to pay royalties, it is permitted in the form of a collection intended for teaching, exam or scientific research, reproduction on paper or similar medium, by photocopying or any forms of photographic or similar technique giving similar results, excerpts of published works of authorship, individual short published works of authorship in the fields of science, literature and music or individual published works of photography, fine arts, architecture, applied art, industrial and graphic design and cartography if it is the work of multiple authors, unless explicitly prohibited by the author.

When it comes to the protection of intellectual property in the form of patents created in the framework of research conducted in educational institutions, it is considered that

scientific discoveries, theories, methods and the like cannot be inventions and therefore cannot be protected and registered as a patent. This practically means that natural laws such as Newton's Law of Gravity and the like have always existed and man has only discovered them. Also, when it comes to aesthetic creations and other creations of the human spirit, there is no possibility of registration in the form of a patent because their purpose is not practical and functional. In addition to the above, if a work is copyrighted, there is no possibility of patent protection. This is the case with information of a technical nature and computer programs.

Any restriction on access to teaching aids, as well as acts created within educational institutions, is to limit the expansion of the educational process. It is for these reasons that intellectual property created in educational institutions should be protected by one of the creative commons licenses. In this way, both teaching staff and other people, especially students, are given the opportunity to use the work in question solely for the purpose of education, promotion and scientific work, which may cause further improvements and improvements to existing methods and works.

#### IV. CONCLUSION

Works created as a product of human creativity, innovation and hard work should be categorized as potential works of intellectual property and as such should be protected by some form of intellectual property depending on the field of application. Employees of educational institutions, especially in higher education institutions, in addition to the basic task reflected in the expansion of education, are actively engaged in scientific research work. A large number of employees of individual departments in their research work closely with large companies in the field of industry. Their task in this kind of collaboration is actually the development of new products, prototypes and inventions applicable in the field of industry. The inventions created in this way are the works of intellectual property by the application of new technologies and newly developed methods. Given the undeniable merits of developing employees for the development of a new work,

authorship of the work or patent ownership should belong exclusively to them.

When it comes to works created for the purposes of teaching, the authorship of the work should also belong to the authors themselves. In practice, this method is often not applicable, but works are protected by colleges or universities, and authors are denied the opportunity to use them and distribute them. Disabling the free use of the work disables the process of expanding education. The same applies to works published by a publisher, where the author is explicitly required to transfer the rights to the publisher. Disclosure of the obtained results to students, sharing with colleagues for the purpose of education or promotion is impossible, because in such a case the author loses the right to share his / her shares with others in the form in which they were published. In the case of well-known publishers, it is not uncommon that access to a work or distribution of a book is conditional on payment of a membership fee to the publisher or payment for each individual work. In this way, the education process becomes a privilege of the senior class.

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