

# Cultivating Intellectual Property Rights Competence in Teachers in Ukraine: Attitude, Challenges, Solutions

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**Abstract:** The research aims to substantiate the need to cultivate the IPR competence in secondary education teachers. Its relevance lies in the fact that the relevant knowledge and skills help promote respect for others' intellectual works and prevent IPR infringements. The findings reveal, inter alia, lack of understanding of the need to observe the IPR-related legal framework; teachers' insufficient IPR competence and understanding; the need to review the state policy on education regarding IPR protection; teachers' willingness to protect their copyright; the need for a relevant IPR competence cultivation within teachers' training and qualification enhancement, etc.

**Keywords:** *intellectual property rights, secondary education, qualification enhancement.*

**How to cite:** Luniachek, V., Ruban, N., Zelenska, L., & Varenko, T. (2021). Cultivating Intellectual Property Rights Competence in Teachers in Ukraine: Attitude, Challenges, Solutions. *Revista Romaneasca pentru Educatie Multidimensionala*, 13(4), xx-xx. <https://doi.org/10.18662/rrem/13.4/>

## 1. Introduction

The relevance of this research is conditioned by education reformation in Ukraine as a prerequisite for its further innovative development. This applies to the need to ensure intellectual property (IP) protection for the findings and discoveries made by the secondary school staff as subjects of the innovation process and cultivate respect for IP products in the generation that is to become the foundation for further economic development of the country in a few years' time. It also comes from the processes aimed at diversifying the education services in the teaching staff's competence enhancement under the new legal framework: the Law of Ukraine 'On Education' No. 2145-VIII (Verkhovna Rada of Ukraine, 2021), Regulation of the Cabinet of Ministers of Ukraine 'Some aspects of qualification enhancement of the teaching and academic staff' No. 800 (Verkhovna Rada of Ukraine, 2019) and 'On Changes to the Procedure for qualification enhancement of the teaching and academic staff' No. 1133 (Verkhovna Rada of Ukraine, 2019); Regulation No. 1133 "On Changes to the Procedure for Qualification Enhancement of the Teaching and Academic Staff" (Verkhovna Rada of Ukraine, 2019); Law of Ukraine "On Education" as of 05.09.2017 No. 2145-VIII, (Verkhovna Rada of Ukraine, 2017). It is diversification of educational services that mobilized cultivation of competences in education workers based on self-esteem, which brought about the demand for a number of competences previously absent from the traditional curricula of the postgraduate pedagogical education system, including competencies in intellectual property rights (IPR) protection.

## 2. Background

The IPR protection in the secondary education system began to receive targeted attention after 2017 when the new revision of the Law of Ukraine "On Education" was adopted (Verkhovna Rada of Ukraine, 2017). At the same time, this attention has been partial, as it has been majorly related to solving the problem of academic integrity as a constituent of the internal system of quality assurance in institutions of secondary education.

The scientific sources that ponder over IP competence cultivation in secondary education workers in Ukraine confirm lack and insufficiency of studies in the field. The existing studies on IP competence cultivation in education workers mainly focus on the academic staff of higher education institutions (HEIs), which is addressed by Y. Boshitskyi, S. Mosov, T. Redchits and others (Boshitskyi, 2014, p. 227; Mosov, 2014; Redchits,

2011). However, their works are predominantly theoretical and do not rely on empirical research.

Inclusion of IP as a subject taught under Master's degree programs is merely the case with economic and law majors where the students can take elective disciplines related to protection of intellectual property rights or choose the corresponding educational program (Luniachek & Ruban, 2019b).

The analysis of the curricula in the speciality 014 Secondary Education (geography, mathematics, physics, Ukrainian language) under Bachelor's and Master's degree programs as well as plans of qualification enhancement of teachers in natural disciplines, mathematics, the Ukrainian language and administrators of secondary education institutions revealed that they contain no disciplines that would shape IPR knowledge and skills and develop the IP competence. Yet, according to the State Statistics Service of Ukraine, the number of the teachers working in Ukraine in 2019/2020 is 440,000, and they teach 4,138,000 students (aged 6-17) in 15,200 secondary education institutions (State Statistics Service of Ukraine, 2020).

Occasional IP mentions appear in teaching and learning aids, one of such being the textbook by I. Shmanko and M. Talapkanych that offers information for teachers and students on IPR protection within their activity (Shmanko & Talapkanych, 2007). Despite the fact that it dates back to 2007, the Transcarpathian Institute of Postgraduate Pedagogical Education used it to develop a program of a special course for teachers "Fundamentals of Intellectual Property". The thematic curricula for the pedagogical staff's qualification enhancement include some topics of this program; teachers of natural sciences and heads of educational institutions are additionally introduced to the peculiarities of acquisition and protection the ownership rights for IP assets, related rights and industrial property (Shmanko, 2012).

Other than that, the basis for studying qualification enhancement in secondary education today is majorly the studies conducted by this Department of Creative Pedagogy and Intellectual Property of the Ukrainian Engineering-Pedagogical Academy presented in the works of its staff. These are majorly the monographic study "Intellectual property qualification enhancement for secondary education staff" (Luniachek et al., 2018), works on creation of a competence model of a secondary education worker in intellectual property, cultivation in them of the relevant professional competence during their professional training and qualification enhancement (Luniachek & Ruban, 2019c, 2019a; Luniachek, 2018), and on redesign of

the curricula and syllabi with regard to IPR and their protection (Luniachek & Ruban, 2019b), etc.

On the other hand, the need to include disciplines on IP and innovation development in the educational programs in higher education to ensure proper training of graduates in the matter has been more and more substantiated by the relevant scientific studies (Lazariev et al., 2017; Luniachek, 2016; Luniachek & Kravchuk, 2019; Luniachek & Ruban, 2019c; Luniachek et al., 2018; Luniachek et al., 2017; Lunyachek, 2018; Nazarenko et al., 2018), and reflected in the following regulatory documents.

The draft National Strategy for Development of Intellectual Property Sector explicitly states that Ukraine has a low level of IP knowledge and culture. The document emphasizes that the urgent problem lies in lack of quality education in intellectual property for all. The syllabi and teaching and learning aids do not provide individual or integrated presentation of IP knowledge as individual areas of study, which would contribute to cultivation of skills and competencies aimed at innovation, invention, creativity, and respect for intellectual property. No less of a problem is lack of IP training among school teachers (Draft of the National Strategy for Intellectual Property Development in Ukraine for 2020-2025 as of 06.11.2019, 2019, pp. 81–88). Hence, the Recommendation from the Hearings of the Committee of the Verkhovna Rada of Ukraine on Science and Education “Legislative Support of the National Innovation System: Current State and Solutions” (June 15, 2016) recognized the need for development and implementation of a state system for development of scientific ideas, intellectual development, and invention at the level of primary, secondary and high school (Committee of the Verkhovna Rada of Ukraine on education, 2016). These provisions found reflection in the Order of the Cabinet of Ministers of Ukraine as of 12.14.2016 No. 988-r approving the concept of government policy implementation in reformation of comprehensive secondary education “New Ukrainian School” for the period until 2029. The document emphasizes that the practices of Eastern Europe (Poland, Czech Republic) show a significant impact of educational reforms on development of economy and education competitiveness at the international level (Verkhovna Rada of Ukraine, 2016).

The Ministry of Information Policy of Ukraine stresses lack of the relevant awareness among the population, too. This is the leitmotif of the letter as of 06.05.2019 No. 12-05/03 “On Information Provision for Preparation of Draft Strategy of Intellectual Property”, which also mentions

that the general evaluation of the IP awareness level in Ukraine was not but needs to be carried out with appropriate surveys and polls (Ministry of Information Policy of Ukraine, 2019). It is this document that became one of the motivating factors for conducting the pilot survey, the results of which are presented below.

The above is the background of and may as well be one of the main reasons for the fact that Ukraine has found itself on the list of the countries infringing intellectual property rights causing “billions of euros in lost revenue” and putting “thousands of jobs at risk”, according to the annual report of the European Commission (European Commission, 2019). The report states that “compared to the previous report, these countries have made no progress or only limited progress” in addressing IPR concerns (European Commission, 2019, p. 9) and maintains that that weak and insufficient IPR enforcement laws and regulatory framework with patents, trademarks, copyright, etc. receiving no adequate protection (European Commission, 2019, pp. 31-32).

Thus, considering the above, a pilot sociological survey was organized to reveal the level of IPR awareness and protection in the education system of Ukraine, and the willingness of the teaching staff to increase their IPR informed awareness and skills.

### **3. Methodology**

The objective of the research was to substantiate the importance of and the need for cultivation of the IP competence in teachers in secondary education during their qualification enhancement as a prerequisite for successful reformation of the education system and strengthening of the innovation potential of the country.

The findings presented here rely on the results of the pilot sociological survey ‘Intellectual Property Through the Educators’ Eyes’ conducted by the Department of Creative Pedagogy and Intellectual Property of the Ukrainian Engineering Pedagogics Academy in cooperation with the sociologists of V.N. Karazin Kharkiv National University within the research project No. 19-01 DB ‘Theoretical and Methodological Foundations of Qualification Enhancement in Intellectual Property of the Education System Staff’ funded on a competitive basis from the state budget for targeted research (State registration number: 0119U101770). The topic was executed in 2019 and 2020. On the eve, in 2018, an application was prepared for funding of this topic from the state budget. The application

contained a detailed plan of the study. The applications that won the award of the research project were selected on a competitive basis from among dozens of other applications for this funding. The researchers compiled a step-by-step plan for the study implementation indicating all surveys and other research procedures to be undertaken thereunder. The step-by-step implementation plan and the results obtained were approved on an annual basis by the Research and Technical Council of the Ukrainian Engineering Pedagogics Academy, and the overall results were approved by the Meeting of the Academic Council of the Ukrainian Engineering Pedagogics Academy. The final report was submitted to the Ukrainian Institute of Scientific and Technical Information (Ukrainian Engineering Pedagogics Academy, 2020).

It should be mentioned that since there is no research ethics committee or any other similar institution in Ukraine, the Research and Technical Council and the Academic Council of the Ukrainian Engineering Pedagogics Academy undertook the role thereof when approving the study plans and reports in compliance with, *inter alia*, the provisions of the Law of Ukraine “On Ethic Conduct Rules” (Verkhovna Rada of Ukraine, 2015).

The ethics related issues in education are a relevant challenge in Ukraine, which is addressed in detail by Luniachek et al. (2013).

The purpose of the study was to preliminarily evaluate the attitude of the secondary education workers to intellectual property, particularly in the context of studying the factors and mechanisms of IPR protection within their qualification enhancement under the conditions of diversification of the educational services provision in the field.

The pilot survey was chosen for the purpose of our research because its small-scale format enables prompt and efficient gaining of relevant information to receive the first understanding of the scope of the problem and to determine if further more large-scale measures are required.

The pilot survey was held in May-December 2019 and consisted of three stages:

**Stage 1.** *Preparatory (May-June 2019):* identification of technical specifications of and program research foundations, design of tools (questionnaires) for the survey of ICSE staff.

**Stage 2.** *Field (July-October 2019):* preliminary test (pre-test); refinement of the tools for surveying by the pre-test results, production and distribution of the survey questionnaires; completion of the questionnaires in ICSEs; logical control of the quality of the filled-in questionnaires and coding of the primary sociological information.

**Stage 3.** *Final (November-December 2019):* content analysis and data interpretation; preparation of the analytical report on the survey results.

To ensure the validity and reliability of the questionnaires used in the survey, the following measures were taken: (pre-test) quality control, survey, assurance of compliance with the rules for selection of respondents, logical control of correctness of the questionnaires completion, other measures improving the reliability of the sociological information. By the control results, the questionnaires failing to meet the methodological requirements were withdrawn without submission for coding. The coding of the primary sociological information and the mathematical and statistical processing of the empirical data were carried out using SPSS and GMS (software packages for sociological questionnaires processing).

In terms of representation and the choice of the participants, the city of Kharkiv for the pilot survey was selected because it is the second largest city in Ukraine with the population of about 1.5 million people and 207 institutions of comprehensive secondary education (ICSEs) (The information is taken from the Official website of the Department of Education of Kharkiv City Council (<http://www.kharkivosvita.net.ua/document/7954>) representing all types and forms of ownership of such institutions in Ukraine and providing educational services to and by diverse groups of people. This enabled us to cover all types of the institutions quickly and efficiently.

The ICSEs were randomly selected to include educational institutions that are different in type and form of ownership (secondary school, specialized school, gymnasium, lycée, private lycée) and located in different administrative districts of the city that are unequally distant from the city center. The participating institutions were: Kharkiv Gymnasium No. 6 “Mariiska Hymnazia” of Kharkiv City Council (Shevchenkivskyi district), ICSE No. 148 of Kharkiv City Council (Shevchenkivskyi district), ICSE No. 10 of Kharkiv City Council (Osnovianskyi district), ICSE No. 35 of Kharkiv City Council (Osnovianskyi district), Specialized School No. 114 of Kharkiv City Council (Slobidskyi district), Kharkiv University Lycée of Kharkiv City Council (Shevchenkivskyi district), Kharkov Technical Lycée No. 173 of Kharkiv City Council (Slobidskyi district), Kharkiv private educational-production complex “Litsei Profesional” (Kyivskyi district).

The surveyed were 176 teachers of secondary education institutions (Ukrainian Engineering Pedagogics Academy, 2019). This is the number of teachers who have returned their questionnaires after they were explained

the purpose of the survey and that they were free to choose not to participate in it. The participation was voluntary of which all the participants were instructed. The total number of the teachers who received the questionnaires as compared to the total number of the teaching staff in each participating school and the number of the filled-in questionnaires returned is presented in Table 1.

**Table 1.** Questionnaires distribution in the participating institutions of comprehensive secondary education (ICSE)

Source: authors'own contribution

Institution of secondary education	Teaching staff total	Questionnaires distributed*	Questionnaires returned
Kharkiv Gymnasium No. 6 “Mariińska Hymnazia” of Kharkiv City Council	58	42	36
ICSE No. 148 of Kharkiv City Council	22	15	10
ICSE No. 10 of Kharkiv City Council	35	23	17
ICSE No. 35 of Kharkiv City Council	38	27	22
Specialized School No. 114 of Kharkiv City Council	50	34	27
Kharkiv University Lycée of Kharkiv City Council	45	28	25
Kharkov Technical Lycée No. 173 of Kharkiv City Council	37	26	21
Kharkiv private educational-production complex “Litsei Profesional”	45	29	18
<b>Total</b>	<b>330</b>	<b>224</b>	<b>176</b>

\* The number of the questionnaires distributed equals the number of teachers present in the institution of secondary education on the date of the survey.



The main sociodemographic indicators of the participants who have returned the questionnaires are presented in Table 2.

**Table 2.** Main sociodemographic indicators of the object of research  
Source: authors'own contribution

Indicators	Teachers (%)
<b>gender:</b>	
women	90
men	10
<b>age (years):</b>	
20-29	10
30-39	22
40-49	35
50-59	19
60 and older	14
<b>pedagogical experience (in years):</b>	
less than 1 year	1
1-5	11
6-15	22
16-25	32
more than 25 years	34
<b>work experience in this institution (in years):</b>	
less than 1 year	6
1-5	19
6-15	24
16-25	28
more than 25 years	23
<b>administrative position</b>	
director, deputy director	4
<b>ownership of works requiring acquisition (protection) of rights as IP assets</b>	
have such works	16
have no such works	55
<b>have experience in acquisition (protection) of IP rights for their own works</b>	
positive experience	8
negative experience	4
no experience	76

When the questionnaires were distributed to the participants, it was explained that the questionnaires were part of the pilot survey conducted by

the Department of Creative Pedagogy and Intellectual Property of the Ukrainian Engineering Pedagogics Academy, and that the answers will be used for preparation of a relevant report and shared with the relevant stakeholders and decision-makers for the purpose of attracting the attention needed to address the IP problem in Ukraine. They were also informed that they were free to choose not to participate in the survey. Therefore, the questionnaires were completed only by the willing participants.

The control of the compliance with the research ethics and procedure was exercised by the contracted for completion of the survey professionals from V.N. Karazin Kharkiv National University.

#### 4. Main findings

The study, in particular determined the respondents' attitude to IPR infringements. Table 3 summarizes the answers to the question about the acuteness of the problem of IPR infringement in the educational environment. It shows that, in general, teachers in institutions of comprehensive secondary education (ICSE) do not regard this problem as acute: only. At the same time, the ICSE male teachers and those who own works requiring acquisition (protection) of rights as IP assets (hereinafter: owners of works) are more keenly aware of the problem in question.

**Table 3.** 'In your opinion, how acute is the problem of intellectual property rights infringement by the educational process participants?'

Source: authors'own contribution

Rating	Teachers (%)
"5" – the problem is very acute	14
"4"	15
"3"	24
"2"	11
"1" – the problem is not acute	20
hard to say	16

Table 4 presents the distribution of answers to the question about the effect of IPR infringements on day-to-day activities. Thus, every second ICSE teacher (50 %) assesses such impact as insignificant, while only 11-15 % of the respondents are of the opposite opinion and believe the impact to be significant. Interestingly, the latter are primarily owners of works. The relative majority (43 %) sees the impact as mainly negative. Male ICSE

teachers, owners of works, and those who believe the problem of IPR infringement to be urgent are more likely to regard this impact as mainly negative.

**Table 4.** ‘Does the problem of intellectual property rights infringement affect your day-to-day activities?’

Source: authors'own contribution

Indicators	Teachers (%)
“5” – significantly affects	6
“4”	9
“3”	15
“2”	16
“1” – insignificantly affects	34
hard to say	21

Answering if the problem of IPR infringement requires urgent tackling, the overwhelming majority (70 %) agree that it does. It is interesting to note that this is majorly the opinion of those with experience in acquisition (protection) of IP rights for their own works or in ownership of works.

Table 5 summarizes the answers about the responsibility to be borne for IPR protection.

**Table 5.** ‘Who, what institution (organization), in your opinion, should be responsible for protection of intellectual property rights?’

Source: authors'own contribution

No. in questionnaire	Indicators	Teachers (% , R)*	
		%	R
2	Council on Intellectual Property of Cabinet of Ministers of Ukraine	45	1
1	Ministry of Education and Science of Ukraine	31	2
6	intellectual property inspectors	26	3
5	law-enforcement bodies	21	4
15	owners of intellectual products	14	5
4	Ministry of Justice of Ukraine	13	6
8	local education management bodies	10	7

No. in questionnaire	Indicators	Teachers (% , R)*	
		%	R
13	professional community (professional associations)	6	8
7	regional education management bodies	5	9-10
16	such institutions do not exist and to be created	5	9-10
3	Ministry of Economic Development and Trade of Ukraine	4	11-12
9	media	4	11-12
14	specialized organizations (public, commercial)	3	13
12	trade union	2	14-15
11	institutions of secondary education	2	14-15
10	specialized departments at universities	1	16
17	hard to say	12	

\* the percent can exceed 100 % because more than one answer was allowed; the data presentation order depends on the number of votes given for a particular point.

Overall, in the teachers' opinion, the TOP-5 institutions (organizations) to be responsible for IPR protection are: the Council on Intellectual Property of the Cabinet of Ministers of Ukraine, the Ministry of Education and Science of Ukraine, intellectual property inspectors, law-enforcement bodies, owners of intellectual products. Today, however, it is actually the Ministry of Economic Development and Trade of Ukraine that is currently in charge of these issues, but only 4 % of the respondents consider it adequate for the task. In general, these are respondents wishing to receive profits from their works.

The answers received also indicate that:

1) there is no institution/entity that is an absolute leader in IPR protection (the first place belongs to the Council on Intellectual Property of the Cabinet of Ministers of Ukraine);

2) the teachers are skeptical about the role of media in this context (only 4 % acknowledge its influence);

3) a significant role in IPR protection is assigned to law-enforcement agencies (21 %);

4) only 2 % believe that the institution responsible for IPR protection should be an institution of secondary education.

The study of the causes of and motives for IPR infringement aimed to determine which of those were primarily related to the problem (see Table

6). It should be noted that the answer variants presented in the table are not exhaustive, and the questionnaire also had the ‘other’ option offered for the respondents to choose for this question. However, the answers showed that this option was not informative and therefore not included in the table.

**Table 6.** ‘In your opinion, what conditions the problem of intellectual property rights infringement in the first place?’  
Source: authors' own contribution

No. in questionnaire	Indicators	Teachers (%, R)*	
		%	R
1	open access to information via internet	53	1
2	no relevant legal framework in the country	39	2
4	no penalty for infringements of IP rights	23	3
6	uncensorious attitude to facts of IP rights infringements	21	4
5	unwillingness/inability to create own intellectual products: why make effort and create your own intellectual product if you can “borrow” (take credit for) a product created by others	18	5
7	low financial standing of teachers, students	11	6
3	legal nihilism of educators	10	7
8	hard to say	7	

\* the percent can exceed 100 % because more than one answer was allowed; the data presentation order (rank, R) depends on the number of votes given for a particular point.

These data bring about the conclusion that, when it comes to IPR infringements, the main reasons for that are open access to information via internet, lack of adequate legal framework and absence of penalties for IPR infringements.

The results also indicate a certain underestimation by the educational respondents of the moral aspect of the problem. This statement relies on the number of votes given in favor of the “unwillingness/inability to create own intellectual products: why make effort and create your own intellectual product if you can “borrow” (take credit for) a product created by others” (18 %) and the “uncensorious attitude of the participants in the educational process to facts of IPR infringement” (21 %).

As noted above, the educators with experience in acquisition (protection) of IP rights for their own works connect IPR infringements with open access to information via internet more often than their colleagues with no such experience.

To understand what motivates ICSE teachers to act in a particular way when facing the dilemma of infringement-observance of IP rights and choosing the model of behavior that is most acceptable for them, the respondents were asked to answer five questions (see Table 7).

**Table 7.** ‘To what extent do you agree with the following statements...?’  
Source: authors'own contribution

Indicators	Teachers (%)*	
	1	2
Persons infringing IP rights mostly lack understanding of their infringements of any rights and particularly of the meaning of plagiarism, “piracy”, etc.	60	30
Teachers have a neutral or tolerant attitude towards non-observance of IP rights.	55	29
There is almost no use of technical tools in everyday educational practice to evaluate originality of texts, and therefore there is a risk of punishment for plagiarism is minimal.	57	30
Infringements of IP rights arise from overload, race against time, need to complete a significant number of tasks in a short time.	59	29
Teachers mostly do not see themselves as authors of works to be protected as IP assets.	68	19

\* Column ‘1’ is the sum of ‘I agree’ and ‘I rather agree’; column ‘2’ is the sum of ‘I disagree’ and ‘I rather disagree’; the sum of ‘1’ and ‘2’ can be less than 100 % because the ‘hard to say’ answers are not presented.

As the table shows, all the reasons mentioned motivate the corresponding behavior to a varying degree. The most prevailing ones can be grouped into three “verbal” formulae: “IPR infringements occur without understanding of the fact of infringement or the meaning of plagiarism or “piracy” (No. 1 on the list), “IPR infringements occur through overload, race against time, need to complete a significant number of tasks in a short time” (No. 4), and “failure to perceive themselves as authors of works to be protected as IP assets” (No. 5). These are the opinions of 59-68 % of the respondents.

In terms of raising the teachers' awareness of IP rights within their qualification enhancement, the question "Was protection of intellectual property discussed (included in the program) during your qualification enhancement?" was addressed only to three quarters of the respondents who enhanced their qualification within the last five years. The answers were as follows: "no" – 62%; "yes" – 25% (the percent here is less than 100 % because not all the respondents answered the question). Thus, only a quarter (25 %) of the respondents who had qualification enhancement claimed to have discussed the matter, which is an alarming indicator.

At the same time, the number of those interested in qualification enhancement in IPR protection and academic integrity rules is larger than that of those of the opposite opinion (see Table 8).

**Table 8.** 'Are you interested in qualification enhancement in protection of intellectual property rights and academic integrity rules?'

Source: authors' own contribution

Indicators	Teachers (%)*
interested	52
not interested	27
hard to say	21

\* 'Interested' equals the sum of 'Yes, I am interested' and 'I am rather interested'; 'Not interested' equals the sum of 'No, I am not interested' and 'I am rather not interested'.

In fact, every other ICSE teacher expressed their interest in qualification enhancement in IPR protection and academic integrity rules. It should be noted that those interested in such qualification enhancement are even more numerous among those who believe that the problem of IPR infringement requires an urgent resolution and among the owners of works.

It was important to study both the factors conditioning teachers' disinterest in qualification enhancement in the field and the most effective forms of enhancement of qualification, literacy in IPR protection.

Thus, Table 9 presents the reasons the respondents cited for lack of interest in enhancement of qualification and literacy in IPR protection.

**Table 9.** ‘If you are not interested in such qualification enhancement, why not?’  
Source: authors'own contribution

No. in questionnaire	Indicators	Teachers (% , R)*
1	I consider my level of qualification in protection of IP rights as sufficient.	9
3	There is not enough time.	38
5	The process is bureaucratic.	22
2	I am not sure if I need it because I see no sense in protecting intellectual rights on my products	33
6	The existing forms of advanced training are not effective.	6
4	It requires money infusions.	18

\* the percent can exceed 100 % because more than one answer was allowed; the “hard to say” answers are not included; the data presentation order (rank, R) depends on the number of votes given for a particular point.

The participating teachers more often emphasize lack of time and understanding of the need to enhance their qualification because they see no point in protecting IP rights for their products. Male teachers are more likely to attribute lack of interest here to the bureaucratic nature of the process.

As mentioned above, the research determined the most effective forms of qualification enhancement in IPR protection, which the study determined, are summarized in Table 10.

**Table 10.** ‘What are the most effective forms of enhancement of qualification in protection of intellectual property rights?’  
Source: authors'own contribution

No. in questionnaire	Indicators	Teachers (% , R)*
4	individual consultations from lawyers, IP experts, colleagues with experience in protection of IP rights	48
6	electronic, network, on-line courses	20
1	educational and methodological seminars, conferences organized by universities/educational and teaching centers	36
2	a seminar (two-hour)/methodological seminar at school, trainings	23
7	self-education	21



5	a complete course in qualification enhancement (150 hours)	6
3	a short-term course (up to 1 week)	19
8	hard to say	3

\* the percent can exceed 100 % because more than one answer was allowed; the data presentation order (rank, R) depends on the number of votes given for a particular point.

The results obtained mainly suggest that educators consider individual consultations from lawyers, IP experts, colleagues with experience in IPR protection, electronic, network, on-line courses and educational and methodological seminars, conferences organized by universities/educational and teaching centers as the most effective and therefore most attractive forms of qualification enhancement in IPR protection. They believe those to be more modern and meeting the requirements of the time. As for individual consultations from experts or seminars organized by educational and teaching centers, those are forms of preference for 36-48 % of the surveyed. Less effective are believed complete courses and 150-hour qualification enhancement courses.

The educators who do not own works requiring acquisition (protection) of IP rights as IP assets are more often in favor of educational and methodological seminars organized by universities or educational and teaching centers. Individual consultations from lawyers, IP experts, colleagues with experience in IPR protection are more popular with those who are owners of works themselves.

Table 11 enables us to make the following conclusions: for secondary teachers, TOP-3 institutions (organizations, authorities) to be responsible for qualification enhancement in IPR protection are the Ministry of Education and Science of Ukraine, the Council on Intellectual Property (advisory body of the Cabinet of Ministers of Ukraine) and teachers themselves (22-36 %). Interestingly, teachers overwhelmingly disregard this function within the competence of an institution of secondary education. They are also quite skeptical about the ability of the professional community to perform this function.

**Table 11.** ‘What institution, authority, etc. should be responsible for qualification enhancement of teachers in protection of intellectual property rights?’

Source: authors'own contribution

No. in questionnaire	Indicators	Teachers (%, R)*
1	Ministry of Education and Science of Ukraine	36
9	institution of higher/secondary education	4
2	Council for Intellectual Property (advisory body of the Cabinet of Ministers of Ukraine)	28
13	teachers	22
8	specialized departments of universities	7
4	Ministry of Justice of Ukraine	18
5	IP inspectors	18
11	professional community (professional associations)	2
3	Ministry of Economic Development and Trade of Ukraine	3
6	regional education management bodies	8
7	local education management bodies	17
12	specialized organizations (public, commercial)	8
10	trade union	3
	hard to say	20

\* the percent can exceed 100 % because more than one answer was allowed; the < 2 % answers are not presented; the data presentation order (rank, R) depends on the number of votes given for a particular point.

In the context of managing IPR protection, we explored the mechanisms for increasing the level of protection, management of protection, development of the culture of protection of intellectual property. Table 12 generalizes the answers about possible ways of improving IPR protection and shows that the vast majority (52 %) believe that it is the consistent state policy in IPR protection that should contribute to enhancement of the level of IPR protection. Every third teacher emphasizes the importance of attention to legislative (legal) mechanisms, in particular modernization of the legislation, legal support, and punishment for IPR infringements. Cultivation in society of intolerance towards facts of IPR infringements is deemed important for only 22 % of the respondents. At the same time, such instruments as media support: coverage, promotion of IP rights on television, in the press, etc., integration of IP disciplines in the

educational programs for training of specialists at institutions of higher education, explanatory, educational work are cited as less effective.

**Table 12.** ‘In your opinion, which of the following could primarily help enhance the level of protection of intellectual property rights?’

Source: authors'own contribution

No. in questionnaire	Indicators	Teachers (% R)*
1	consistent state policy in protection of IP rights	52
7	cultivation in society of intolerance towards facts of infringements of IP rights	22
3	updates in legislation, legal support	36
4	punishment for infringements of IP rights	32
2	demanding administrators of educational institutions	5
8	explanatory, educational work	22
5	media support: coverage, promotion of IP rights on television, in the press, etc.	23
6	integration of IP disciplines in educational programs for training of specialists at institutions of higher education	16

\* the percent can exceed 100 % because more than one answer was allowed; the “hard to say” and < 2 % answers are not presented.

As for administrators of educational institutions being demanding in promotion of IPR protection and enhancement of the level of such protection, very few consider this as a meaningful factor. Perhaps, this attitude arises from how teachers evaluate the role of the administrators of their institutions of education in management of the process (Table 13). The prevailing opinion here is that the role of the administrators of the educational institutions is imperceptible (27 %). To compare: 18 % of the respondents remark significant efforts from the administrators of ICSEs (lycées, gymnasia) to protect IP rights, i.e. their role is perceptible and significant.

**Table 13.** ‘In your opinion, what role should administrators of educational institutions where you work play in management of intellectual property rights protection?’

Source: authors'own contribution

Indicators	none so far (%)	has to be (%)
<b>perceptible and significant:</b> the administrators are making significant efforts to protect IP rights of teachers	18	53
<b>hardly perceptible, sporadic:</b> such matters issues are sometimes discussed at meetings at secondary educational institutions; decisions are approved, but real changes are imperceptible	17	6
<b>imperceptible:</b> the administrators may be doing something about protecting IP rights, but I do not feel it	27	7
hard to say	38	34

As for what the situation here has to be like, the majority emphasized that the administrators of the educational institutions must make significant efforts to protect IP rights of the teachers.

In terms of practices of concluding copyright contracts with teachers for their intellectual products, more than half of the respondents claim them to be non-existing (Table 14). Moreover, intellectual product is considered the property of the teacher who is the author thereof in 42 % of case and the property of the institution – in 13 % of cases.

**Table 14.** ‘Does your institution have a practice of concluding contracts with teachers for their intellectual product in terms of copyright?’

Source: authors'own contribution

Indicators	Teachers (%)*
Yes, there is such a practice there.	7
No, there is no such practice there. Everything is the property of the teacher who is the author of the intellectual product.	42
No, there is no such practice there. Everything is the property of the school.	13
hard to say	38

\* the percent can be less than 100 % because the “other” answers are not included.

The question “Do you know any instances when your colleagues exercised IP rights for commercial profit?” received “yes” answers from only 13% of the respondents, with the overwhelming majority (87%) answering negatively, which most likely indicates that this practice has not yet been sufficiently widespread.

## 5. International significance

This study is the first research of this kind conducted in Ukraine. For the international community, it is interesting because it offers the first objective data on the problem, which can be used by the international scientific community for understanding the corresponding processes in the territory of one of the largest countries in Europe and is yet another puzzle for perceiving the state of the problem under study in the world. Its relevance also lies in the fact that Ukraine has significant problems with adhering to the international legislation in terms of intellectual property rights protection. The authors believe that the situation can be improved at the stage of training the new generation for life through cultivation in them and their teachers of a corresponding competence.

## 6. Conclusions

The survey findings suggest the following conclusions:

- Cultivation of an IPR competence in secondary education is an underexplored and underdeveloped problem in Ukraine, with no systematic practice of sociological surveys on IPR protection in secondary education.

- Increased attention to legal protection of innovative activity objects in education being today’s worldwide trend in reformation of the national education systems conditions the need to cultivate a competence in IPR protection in teachers working in secondary education, teach to protect teachers’ intellectual achievements, and promote respect for others’ intellectual works in secondary school graduates while teaching them proper use of IP products.

- There exist problems requiring urgent attention and resolution: lack of understanding of the necessity to observe the relevant legal framework related to protection, insufficient teachers’ IPR competence and understanding to cultivate in students of an appropriate attitude to use of others’ intellectual works and protection of their own, and hence certain “legal nihilism” in the educational community in regards IPR protection.

- There is a clear tendency towards the growing needs of the teaching staff in their qualification development in IPR protection fueled by the increasing number of those who produce own innovative works and wish them properly copyright protected.

- The state policy on education needs to be adjusted to define the relevant powers and functions vested in the competent institutions to protect IP rights and ensure awareness thereof in secondary schools and promotion of the related knowledge among students.

- An important national task is inclusion in the standards at all secondary education levels of the relevant requirement to teach IP competence, which has to find adequate reflection in the corresponding curricula and programs.

- Cultivating the IPR competence in teachers needs to be part of their training as students and further qualification enhancement.

## 7. Discussion

Considering the findings of the pilot survey, we can see that the inefficient IP awareness of and practical application of IP knowledge and skills by the teaching staff is insufficient for them to ensure adequate cultivation of the IPR knowledge and skills in their students.

The scope of the survey may be regarded as very limited and therefore insufficient for solid conclusions. Yet, it is a pilot one and primarily serves the purpose of revealing and emphasizing the problem enough to give reasonable grounds and substantiation for appealing to the relevant stakeholders and decision-makers at all levels to take action and combine efforts for elaboration and implementation of the appropriate measures to ensure adequate IPR protection, enforcement and comprehensive inclusion in the education system of Ukraine.

Given the lack of IPR protection studies and practices in the education system of Ukraine, more large-scale and field studies are needed with more specific objectives and tools.

After all, enhancing the teaching staff's IP competence serves the long-term purpose of cultivating respect for IP rights and ensuring adequate protection of intellectual property assets as it is at the primary and secondary education levels that the foundations for future life practices and principles are laid.

Another red flag is almost non-existent practice of sociological surveys in secondary education on IPR protection, which, in the light of the urgency of the problem, may indicate a certain infantilism of the education

quality assurance system as regular surveys can quickly and efficiently reveal the existing issues to be addressed. For one, such practice would clearly have long ago brought about the needs of the teaching staff for their IPR competence enhancement to the attention of the education administrators and may have sped up the relevant changes to the corresponding curricula and programs.

Inspired and strengthened by the emphasis the World Intellectual Property Organization places on the importance of intellectual property in the modern world as it “affects virtually all aspects of the economic and cultural life” of society concluding that university-level IP education is “of increasing relevance in educational programs” and therefore should be included in “a broad range of teaching programs” (law, entrepreneurship, fine arts, engineering, sciences, journalism, etc.) (WIPO, 2004, p. 422), we hope that this first pilot survey can be a wake-up call that will set the needed gears in motion to improve IP informed awareness and practices in our country.

The authors’ contribution is that they have undertaken the first in Ukraine attempt to study the problem of intellectual property rights protection at the level of secondary education.

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