Licenses as a Legal Basis for the Use of Internet Resources in the Educational Process

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Abstract

Currently, blended learning is becoming a promising form of higher education organization. This implies an increase in the volume of author's electronic educational and methodological content used in the educational process, for the creation of which teachers use software hosted on websites and third-party digital materials: presentations, texts, drawings and video materials. In this regard, the article discusses free and open licenses as the legal basis for using the resources of the global Internet in the educational process. To determine the degree of teachers' awareness an anonymous survey was conducted. The survey included 76 teachers of all age groups; most of them have more than 5 years of university work experience. The results revealed that more than half of the teachers believe that any software and all third-party digital materials posted on the global Internet have open access and can be freely used, modified and distributed. The novelty of the study is determined by the fact that the awareness of teachers in this area is being investigated. The practical significance is determined by the fact that the legitimate use of software and third-party digital materials posted on the Internet can improve the quality of author's electronic educational and methodological content.

Keywords: blended learning, copyright electronic content, Internet resources, legal use of third-party digital materials, teacher awareness.

1. Introduction

According to experts, in the next decade, blended learning will be one of the promising forms of organizing higher education (Bonk, Graham, 2004; Fomina, 2014; Khodeir, 2018).

Thus, the authors H. Batty, G. Scott, K. Stevens claim that the findings highlighted that the placement and the blended learning approach was successful from both the student and staff perspectives (Batty et al., 2022).

Currently, the concept of blended learning developed by the Clayton Christensen Institute (CCI) has been adopted (Shattuck, Burch, 2018). It defines blended learning as a formal educational program in which a student learns:

- In part online, with some element of control over the time, place, path, or pace of their learning.
- In part in a brick-and-mortar location away from home.
- The modalities along a student's learning path are connected to provide an integrated learning experience.

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As you can see, blended learning involves an increase in the volume of electronic educational and methodological content used in the educational process, which must be created in accordance with state educational standards of higher professional education and author's teaching methods.

Thus, pre-recorded lecture videos had a positive impact to teaching and learning of chemistry courses among the students (Lapitan et al., 2021).

Author's electronic educational and methodological content posted by teachers on the university's online platform to support blended learning can be defined as the content of various types of scientific, pedagogical, educational, informational, instructive, organizational, regulatory, technical and other materials presented in electronic form (Robert, Lavina, 2012).

The range of technological solutions of online platforms used by universities to support blended learning is quite wide – these can be:

- specially designed software products, Authoring Packages (for example, We.Study, https://we.study);

- Learning Management System (LMS, for example, Moodle, https://moodle.org);

- Content Management Systems (CMS, for example, WordPress, http://www.itrack.ru/research/cmsrate) (Adini et al., 2017);

- in the simplest case, an online platform is a university website where teachers post electronic educational and methodological content and students' mobile applications to display this content.

In the process of creating author's electronic educational and methodological content, teachers use global Internet resources.

Internet resources can be defined as a set of scientific, pedagogical, educational, methodological, normative, instructive, organizational, technical information and software presented in a format that provides their technical and technological support in local and global networks and stored on various servers (Robert, Lavina, 2012).

Usually these resources are developed by companies to generate profit from users or advertising, but sometimes they are completely free for educators.

In accordance with the current copyright law, all rights, both property and non-property, automatically belong to the authors. The right to determine the forms, methods and technologies for the distribution and use of intellectual property belongs to its owner. The granting of intellectual property rights to the third parties and notification of this is governed by the relevant licenses or documents (agreements) that give the right to perform certain actions (Avtorlıq..., 2020; Grazhdanskiy..., 2022).

That is, there is a need to inform teachers in the field of licenses application, as a legal basis for the legal use of Internet resources in the educational process.

2. Materials and methods

Teacher software

Recently, software sites have appeared on the Internet, where teachers have the opportunity to create and publish their own educational and methodological materials in colorful, digital form.

For example, using the Prezi cloud web service (https://prezi.com), you can create interactive multimedia presentations with a non-linear structure online. Prezi generates one slide that contains the entire presentation. This service is free for teachers.

Web service Kahoot! (https://kahoot.com) is free and designed to create online quizzes, polls and discussions. Since the service is aimed at rapid development, and the options are minimal. Students use mobile phones to answer test questions. On the common screen, they see the question and the results of the answers of the whole group. During the test, a healthy spirit of competition arises, which increases the involvement of students in the learning process (Wang, Tahir, 2020).

So, paid licensed commercial software is called proprietary and means that you cannot use any of its functions before buying the program.

In addition to paid software, there is free software of interest to us: Freeware, Shareware, Adware, Demo, Freemium, Open-source and Free Software.

Most of the Internet resources with software for teachers belong to the class of programs called Freemium – this is a business model that offers to use the online service for free, but with incomplete functionality, and an premium version or program with improved, higher quality are offered for an additional fee depending on the amount of features.

And only Free Software can be freely installed and used on any computers: in universities, offices, on personal computers of teachers and students, on computers of commercial and governmental organizations and institutions. It grants the user the right to: run the program freely; distribute copies of it; have access to the source codes of the program, study them, change and improve them (Pozharina, Ponosov, 2008).

To save users of free software from legal problems, developers give users the necessary rights by releasing the software source code under free software licenses.

Unlike a typical proprietary license, free licenses grant the user the rights that are specific to free software. The user can read the source code of the programs, edit it, and distribute modified and unmodified versions of the software.

Under the terms of free licenses, the rights holder cannot revoke the privileges granted to users, but the authors of the software retain their rights guaranteed by law.

The first such license was formulated by Richard Stallman. It's called the GNU General Public License, or GNU GPL for short, or simply the GPL (Litsenziya..., 2014).

Modern free licenses: GPL, LGPL (https://www.fsf.org), BSD (https://www.bsd.org), MIT (https://tlo.mit.edu), MPL (https://foundation.mozilla.org/en/who-we-are/licensing), Apache License (https://www.apache.org/licenses/LICENSE-2.0), have a number of differences, but they all give the teacher the right to use the software for any purpose, freely distribute it, modify it (except for the name), and distribute modified copies.

So the authors Sen R., Subramaniam C., Nelson M.L. argue that non-copyleft licenses will dominate for large open source software projects (Sen et al., 2011).

Third party digital content hosted on the Internet

Also recently, the practice of free exchange and use of presentations, texts, photographs, drawings, video materials, open electronic educational resources posted on sites on the global Internet has become widespread. Third-party digital materials are used by teachers to create their own electronic educational and methodological content.

Free licenses intended for software are not suitable for the distribution of electronic content in the field of education and science (Camerlink, Pongrácz, 2022). To legalize the use of third-party digital materials, a group of international licenses Creative Commons has been developed (Vorozhbit et al., 2011; Yeliseyev, 2019).

To prohibit copying and (or) modification of copyrighted digital material, the copyright holder may use technologies for distributing hyperlinks to this material, technologies for embedding content in a website or blog.

To retain your intellectual property and allow Internet users or a limited number of individuals to view, copy, modify and distribute copyrighted digital material, it must be accompanied by a Creative Commons license (Herr, 2021).

Creative Commons open licenses (https://creativecommons.org) comply with copyright law, they describe the terms of use of presentations, texts, photos, drawings, videos to which they are attached.

Unlike free licenses, Creative Commons do not require distribution of accompanying text with license terms along with the work, a letter code from the basic elements is enough (Litsenziya..., 2021; Rukovodstvo..., 2020).

Internet survey

To determine the degree of teachers' awareness in the field of licenses application, as a legal basis for the legal use of Internet resources in the educational process, an anonymous survey was conducted.

To conduct the survey, a questionnaire was developed, which was posted on the Internet on Google Forms, which provide a service for conducting user surveys based on the Google Marketing Platform (https://docs.google.com/forms/d/e/1FAIpQLScEFiHuFvdNZtvj9W_C5d6w8I-3tTE49erCUyzcgqL4s-CtUQ/viewform?usp=sf_link).

76 teachers took part in the survey. For greater clarity, the qualitative composition of teachers is shown in Table 1.

Table 1. Composition of teachers who took part in the study

| Composition	Quantity
Total teachers	76
Male teachers	31
Female teachers	45
Under the age of 30	15
At the age of 30-40 years	22
At the age of 41-50 years	24
Over 50 years old	15
With less than 1 year of work experience	7
With work experience from 1 to 5 years	16
With more than 5 years of experience	53

As we can see, 41 % of male and 59 % of female teachers took part in the survey; 20 % were teachers under the age of 30, 29 % were teachers aged 30-40, 32 % were aged 41-50, 20 % were teachers over 50; 70 % of which have more than 5 years of university work experience.

For greater clarity, the results of the survey of teachers are given in the form of Figure 1.

1) How often do you use Internet resources in your work?
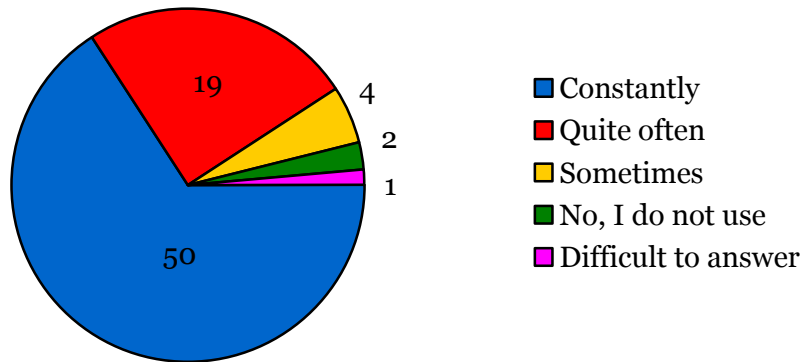
2) How often do you use software for teachers hosted on sites on the global Internet in your work?
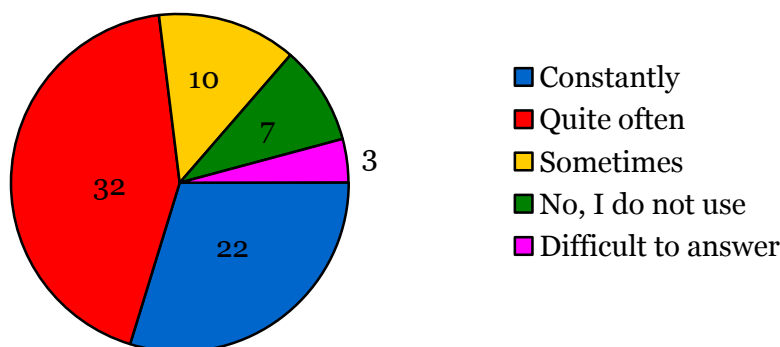

3) How often do you use presentations, texts, drawings or videos posted on the Internet in your work?

- Constantly
- Quite often
- Sometimes
- No, I do not use
- Difficult to answer
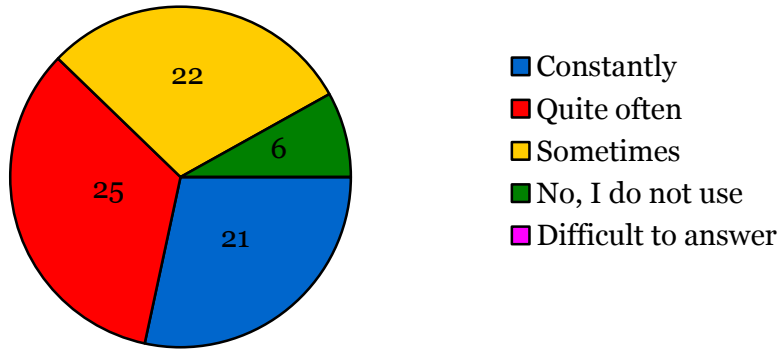
4) If the software for teachers, presentation, text, drawing or video material is posted on the global Internet, does this mean that this resource has open access and any Internet user can view copyright material, use, modify and distribute it?

- Yes
- Rather yes than no
- More likely no than yes
- Not
- I'm at a loss

5) Can free software licenses be used to use, exchange, modify and distribute electronic content in the field of education and science?

- Yes
- Rather yes than no
- More likely no than yes
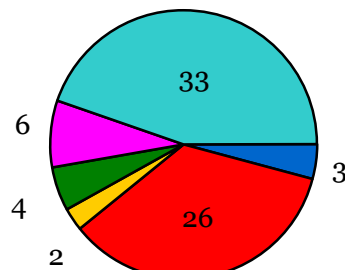- Not
- I'm at a loss
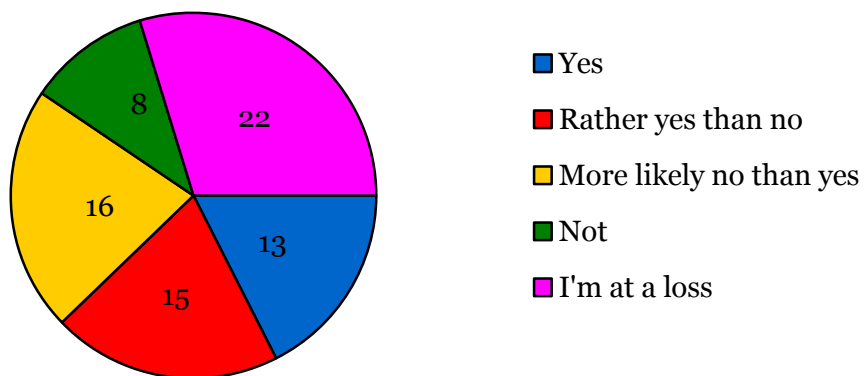
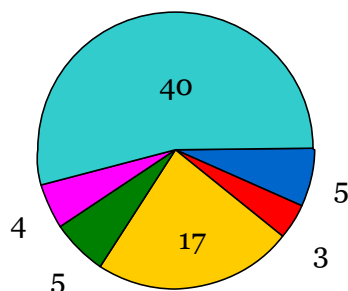6) What does the "Attribution (abbreviated BY)" element ⓘ mean?
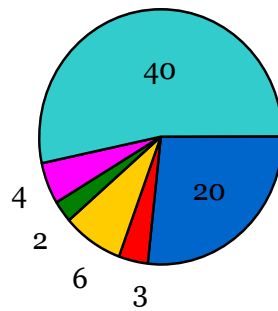
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■ You may only distribute derivative works under the same license as the original work

■ It is allowed to make any changes to the work, use it exclusively for non-commercial purposes, with the obligatory indication of the author of the original source and the license preservation
■ Difficult to answer

7) What does the element "Noncommercial (abbreviated NC)" 🚫 mean?

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■ It is allowed to make any changes to the work, use it exclusively for non-commercial purposes, with the obligatory indication of the author of the original source and the license preservation

■ Difficult to answer

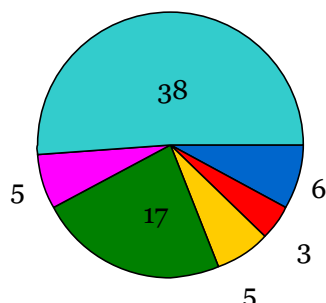8) What does the element "No Derivative Works (abbreviated ND)" mean ⊜?

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■ It is allowed to make any changes to the work, use it exclusively for non-commercial purpos with the obligatory indication of the author of the original source and the license preservatio

□ Difficult to answer

9) What does the "Share-alike (abbreviated SA)" element ⊚ mean?

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■ It is allowed to make any changes to the work, use it exclusively for non-commercial purposes, with the obligatory indication of the author of the original source and the licen preservation
□ Difficult to answer

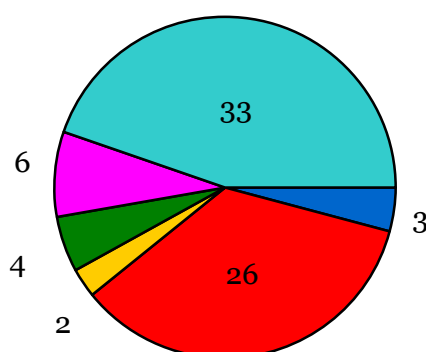10) What does the following entry "CC BY-NC-SA" 🛈💲🄎 mean?

- ■ It is allowed to copy, distribute, reproduce, perform and rework the work, provided that the author of the work is indicated

- ■ Permission is granted to copy, distribute, reproduce, perform and process for non-commercial purposes

- ■ Permission is granted to copy, distribute, reproduce and perform only unmodified copies

- ■ You may only distribute derivative works under the same license as the original work

- ■ It is allowed to make any changes to the work, use it exclusively for non-commercial purposes, with the obligatory indication of the author of the original source and the license preservation
- ■ Difficult to answer

Fig. 1. Results of the teachers' survey

As you can see, 66 % of the responding teachers constantly use and 25 % of the teachers quite often use the Internet resources in their work. 30 % of teachers constantly use, 43 % quite often use the software posted on the sites. Presentations, texts, drawings and videos posted on the global Internet are constantly used by 28 % and quite often by 34 % of teachers.

At the same time, 14 % of teachers answered that any software and all third-party digital materials posted on the global Internet: presentation, text, drawings and video materials have open access and can be freely viewed, used, modified and distributed; 38 % of teachers answered yes rather than no.

30 % of teachers found it difficult to answer the question: "Is it possible to use free licenses designed for software to use, exchange, modify and distribute electronic content in the field of education and science." Thus, they showed a lack of awareness in the field of application of free licenses, which are the legal basis for the legal use of free software.

53 % of teachers found it difficult to answer what the basic element of Creative Commons licenses "Attribution" means, 45 % found it difficult to answer what the element "Noncommercial" means, 54 % what the element "No Derivative Works" means, 51 % of teachers found it difficult to answer what the element "Share-alike". 57 % of teachers found it difficult to answer what the letter code "CC BY-NC-SA" means.

So, the teachers' survey results made it possible to identify the problem of their lack of awareness in the field of application of licenses, as a legal basis for the legal use of Internet resources in the educational process.

3. Discussion

For the training of university teachers, a training module "Licenses as a legal basis for the use of Internet resources in the educational process" has been developed. The duration of training is 72 hours, it is provided for control over its development.

The training purpose: familiarization of university teachers with free and open licenses as a legal basis for the legal use of Internet resources in the educational process.

Required initial level of students' training: familiarity with basic concepts and services of the Internet; knowledge of terminology related to the educational process; the ability to search for information on the Internet; experience with Internet resources.

Formed knowledge and skills of students:

–understanding of the normative base of documents regulating the legal aspects of the Internet resources use in the educational process;

–familiarization of teachers with free and open licenses as a legal basis for the legal use of software and third-party digital materials posted on the global Internet.

The module structure is shown in Table 2.

Table 2. The structure of the module "Licenses as a legal basis for the use of Internet resources in the educational process"

№	Lessons content	Number of hours		
		Lectures	Practical lessons	Independent work
1	Introduction. Information about the module, learning objectives, formed knowledge and skills	1	-	5
2	Acquaintance with the main provisions of the legislation of the Republic of Kazakhstan, regulating the use of Internet resources	4	-	2
3	Teacher Software: Prezi, Kahoot!	-	4	2
4	Acquaintance with the main provisions of the Russian legislation governing the use of Internet resources	2	-	4
5	Classification of computer programs in accordance with the rules of law. Open source and free software	2	-	4
6	Search for educational information on the Internet	-	3	3
7	GNU General Public License. Comparative analysis of free licenses: GPL, BSD, MIT, LGPL, MPL, Apache License	2	-	4
8	Legitimacy of educational materials exchange. Legality of using social media tools	2	-	4
9	Search for third-party digital materials on the global Internet	-	4	2
10	Creative Commons open licenses	2	-	4
11	Creation of author's educational and methodological content	-	4	2
12	Test lesson	-	-	6
	Number of hours modulo:	15	15	42

Taking into account the specifics of an adult audience: the form of presentation of lecture material involves providing students with the opportunity to adapt the content to their own practice during classes; practical exercises include familiarization with the experience of colleagues, work in small groups; project activities are aimed at creating their own educational and methodological content, professionally in demand in the educational process.

4. Results

At the teachers' request, two groups were allocated.

In the process of teaching the first group, electronic educational resources were used: educational puzzles, educational game "Who wants to become a millionaire?", electronic laboratories and text mosaic.

Text files in pdf format with thematic hyperlinks in the global Internet were used as teaching aids for the second group.

A point-rating scale was used. The results of teacher testing, after training, are shown in Table 3 and Figure 2.

Table 3. Results of the final testing university teachers, after training

Levels of knowledge and skills	Group 1	Group 1	Total
High (90-100 points)	5	2	7
Sufficient (70-89 points)	26	21	47
Satisfactory (50-69 points)	7	15	22
Unsatisfactory (0-4 points)	0	0	0
Total	38	38	76
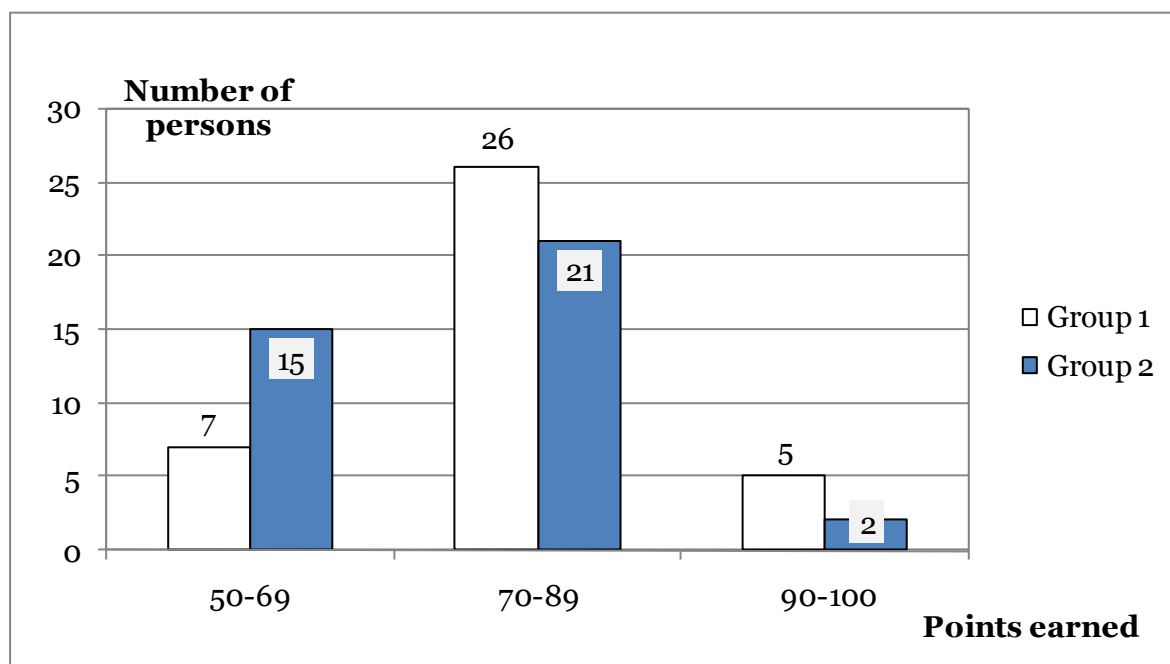
Fig. 2. Results of testing teachers, after training

The following results of teacher testing were obtained: 14 % of the first group and 5 % of the second group teachers received excellent marks (high level); 68 % of the first group teachers and 56 % of the second group received well (sufficient level); 18 % of the first group and 39 % of the teachers of the second group received satisfactory results, not a single teacher received unsatisfactory results.

A statistical hypothesis H_0 was put forward about the homogeneity of the first and second groups in terms of knowledge and skills levels after training, which was tested on two samples obtained from the results of the final testing of these groups (Table 4 and Figure 1) using the Pearson goodness-of-fit test χ^2 (Vukolov et al., 2003: 294-295. Example 3).

According to formula (5) (Vukolov et al., 2003: 271) we find:

$$\chi^2 = 76 \cdot \left(\frac{5^2}{38 \cdot 7} + \frac{2^2}{38 \cdot 7} + \frac{26^2}{38 \cdot 47} + \frac{21^2}{38 \cdot 47} + \frac{7^2}{38 \cdot 22} + \frac{15^2}{38 \cdot 22} - 1 \right) =$$

= 76 · (0.093984962 + 0.015037594 + 0.37849944 + 0.246920493 + 0.05861244 + 0.269138756 − 1) = 4.72672 ≈ 4.73

Number of degrees of freedom (Vukolov et al., 2003: 293): $r = (4 - 1) \cdot (2 - 1) = 3$.

The statistics of the Pearson test χ^2 turned out to be 4.73 with a tabular value defined $\chi^2_{1-\alpha}$ at the significance level α = 0.05 with three degrees of freedom 7.81 (Vukolov et al., 2003: 417. Table P5). This made it possible to accept the H_o hypothesis as plausible and combine two samples with the results of the final testing into one.

The number of trainees in the combined sample who acquired knowledge and skills at a high and sufficient levels turned out to be 54 people (Table 4 and Figure 1) or 71 %, that is, the majority.

The first group showed better results than the second one.

The study confirmed the assumption that the inclusion of modern electronic educational resources in the educational process contributes to improving the quality of students' knowledge.

5. Conclusion

Free licenses, such as GPL, BSD, MIT, LGPL, MPL, Apache License, are the legal basis for teachers to use free software provided by developers on sites on the Internet to create their own electronic educational and methodological content.

Open licenses such as Creative Commons are the legal basis for the free exchange of educational digital content. The developers of open educational resources, unlike other copyright holders of presentations, texts, photographs, drawings, video materials, deliberately waive their rights that limit the ability of users to distribute or modify copyright digital material, while retaining only certain rights to it.

To identify the awareness of teachers in this area, an Internet survey was conducted. 76 teachers took part in the survey.

Almost the same number of male (41 %) and female (59 %) teachers participated; teachers of all age groups: under 30 years old (20 %), 30-40 years old (29 %), 41-50 years old (32 %), over 50 years old (20 %); most of them have more than 5 years of university work experience (70 %).

Most of the responding teachers use the Internet resources in their work (66 % use it constantly and 25 % quite often). Teachers use software hosted on websites (constantly use 30 % and quite often 43 %); as well as presentations, texts, drawings and video materials posted on the global Internet (constantly used by 28 % and quite often by 34 %).

At the same time, more than half of the teachers believe that any software and all third-party digital materials posted on the global Internet: presentation, text, drawings and video materials have open access and can be freely viewed, used, modified and distributed (yes, you can used – answer 14 % of teachers and more likely yes than no – 38 %).

Almost a third of teachers (30 %) found it difficult to answer the question: "Is it possible to use free licenses designed for software to use, exchange, modify and distribute electronic content in the field of education and science".

Most of the responding teachers could not recognize the letter code and pictures of the basic elements of the Creative Commons open licenses. Difficult to answer what the element "Attribution" means 53 % of the responding teachers, "Noncommercial" – 45 %, "No Derivative Works" – 54 %, "Share-alike" – 51 % of the teachers. What does the entry "CC BY-NC-SA" mean? 57 % of teachers found it difficult to answer.

Thus, the study revealed a lack of awareness of teachers in the field of application of free and open licenses, which are the legal basis for the legal use of software and third-party digital materials hosted on the global Internet, in the process of creating copyright electronic content and using it in educational process.

To train university teachers, a training module "Licenses as a legal basis for the use of Internet resources in the educational process" was developed, which provides training for 72 hours and monitoring the results of its development.

After the training, some of the teachers showed a high level of mastering the educational material of the module (14 % of the first group teachers and 5 % of the second group received

excellent marks); more than half of the teachers mastered the educational material at a good level (68 % of the first group and 56 % of the second group); approximately one third of the teachers showed a sufficient level of knowledge and skills (18 % of the first group teachers and 39 % of the second one).

The study confirmed the assumption that the inclusion of the first group of modern electronic educational resources in the educational process contributes to improving the quality of students' knowledge.

6. Acknowledgments

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