

Use of Digital Tools for Checking Uniqueness by Students and Academic Staff of the Borys Grinchenko Kyiv University: Problems and Solutions

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ABSTRACT

The article examines the level of mastery by the Borys Grinchenko Kyiv University students, master's students, postgraduates, academic staff and researchers of the digital tools allowing to check the uniqueness of academic texts. The anti-plagiarism software most popular among the respondents was identified; its advantages and shortcomings, as well as the difficulties that arise when using it were analyzed. Proposals on how to increase the level of mastery of skills in self-regulation of educational and scientific activity, in particular writing own academic texts, for all participants in the Borys Grinchenko Kyiv University educational and scientific process were developed. Based on results of the survey, an algorithm for detecting the absence/presence of academic plagiarism in the student research papers submitted to the Ukrainian Competition of Student Research Papers in the Fields of Knowledge and Specialties was developed and launched, indicating the responsibility of all actors of the process for observance of the principles of academic integrity.

CCS CONCEPTS

• **Human-centered computing** → **Human computer interaction (HCI)**; • **Human computer interaction (HCI)** → *Empirical studies in HCI*.

KEYWORDS

digital tool, academic text, academic plagiarism, academic text uniqueness

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1 INTRODUCTION

Today, the possibilities for copying other people's texts have increased many times due to the digitalization of society and the rapid development of current methods of searching, collecting, storing and processing information. This phenomenon is academic plagiarism, which according to the Law of Ukraine on Education is interpreted as the "publication (partially or completely) of scientific (creative) findings obtained by others, as the findings of own research (creativity) and/or reproduction of published texts (published works of art) of other authors without attribution of authorship [17]". The opposite of it is the phenomenon of the uniqueness of the academic text.

According to the Law of Ukraine on Education, academic plagiarism and self-plagiarism are considered the types of breaching academic integrity [13] drawing special attention to this issue facing higher education institutions that recognize academic integrity as one of their core values.

Our study presents the experience of implementing the principles of academic integrity at Borys Grinchenko Kyiv University. Borys Grinchenko Kyiv University is located in Kyiv, Ukraine. The university consists of six institutes, four faculties and one university college with more than 9,000 students. Each year around 6000 teachers and school principals enhance their skills and gain qualifications at the university. Students study in more than 50 programs, mostly in the humanities.

Thus, one of the Borys Grinchenko Kyiv University operational and corporate culture principles is the observance of academic integrity. Accordingly, the Academic Council of the Borys Grinchenko Kyiv University developed and approved the documents aimed at forming a conscious attitude of the academic community to its own activities, in particular related to the preparation, publication of own academic texts, namely:

- Regulation on the Academic Integrity of academic staff, researchers, educators and higher education seekers of the University [5];

- Declaration on the Academic Integrity of academic staff, researchers, and educators of the Borys Grinchenko Kyiv University [2];
- Declaration on the Academic Integrity of students, postgraduates, and doctoral students of the Borys Grinchenko Kyiv University [3].

The Borys Grinchenko Kyiv University also has a School of Academic Integrity, whose representatives, in cooperation with the University Library and external experts, conduct systematic training of higher education seekers and staff in order to form the research culture and competencies necessary for the implementation of academic integrity principles, in particular on checking the texts for plagiarism, the use of digital tools to detect borrowings, the design of bibliographic references in scientific papers, etc., which aims to increase the percentage of uniqueness of academic texts.

However, according to a survey of 2,941 respondents conducted at the Borys Grinchenko Kyiv University at the end of 2020, plagiarism and self-plagiarism in the activity of students and postgraduates were indicated by 28% of academic staff and in the activity of academic staff by 18% of students and 28% of postgraduates.

In the contemporary scientific and educational space, this issue is being increasingly addressed through the use of various digital tools (Unicheck, Strikeplagiarism, Antiplagiat, eTXT Antiplagiarism, Content Watch, Advego Plagiatus, StrikePlagiarism, PlagiarismCheck), which help to check the academic texts for uniqueness and identify borrowings, similarities, matching with the texts of other authors placed on the Internet, in repositories and databases. The anti-plagiarism software is implemented in the training of future experts at the universities of the European Union [18].

The Ukrainian market is dominated by the services that are unknown to Western users, as the language of search must be Cyrillic. Antiplagiat is the leader among users of Borys Grinchenko Kyiv University, as it has a user-friendly interface, sufficient depth of archives and provides fast results. The only disadvantage is that there is the limit for free verification (not more than three documents per day of 15 MB and you can download the document only in txt and pdf format). Subscription services deal with this problem, where you can download about 40 MB of text and the number of checks is not limited. Sources for verification are publicly available, but subscription services also offer a separate search for Institutional and national repositories, databases of abstracts and dissertations, etc. In particular, the Strike Plagiarism system searches the RefBooks database, the home database, the database exchange program and the Internet.

2 LITERATURE REVIEW

The digital tools for plagiarism checking are currently actively studied by domestic and foreign authors. In particular, the main functions of digital tools, which check the texts for uniqueness are studied [4]; the areas of use of digital scientific and educational systems for the development of information and research competence of researchers and the academic staff are determined [21]; available tools to detect plagiarism are analyzed [10]; databases of text fragments are developed on the basis of the combined system of recognition of images [12]; the search for the algorithm of checking the texts for uniqueness is carried out [16]; the information

technology that detects plagiarism is tested for effectiveness [9]; the application of anti-plagiarism software during the checking of student works as one of the main tools for the formation of academic integrity among the students of European universities is studied [18]. Also, international organizations, such as the American Councils in Ukraine [7], and individual authors [15] conduct awareness-raising activities and develop training courses on academic integrity for higher education seekers, academic staff and researchers in which separate sections are devoted to academic plagiarism and the checking of texts for uniqueness.

The topic of plagiarism check is not new for the co-authors of this article. Thus, in particular, Opryshko et al. [14] researched the use of text match scanners in the editorial process of Ukrainian scientific journals. The results showed that publishing houses that publish journals with international distribution and those indexed by the scientometric platforms Scopus and WoS (category "A" according to the national classification of Ukraine) mostly use similarity scanners. Publishing houses operating only within Ukraine, the journals of which are not represented in prestigious scientometric platforms, often ignore plagiarism detection software altogether and rely solely on the opinion of reviewers and editors. It is shown that the practice of using text similarity scanners, although entrenched in the Ukrainian scientific and publishing space, is still not widespread enough and does not cover the vast majority of scientific journals that rely only on traditional forms of reviewing scientific texts [14].

Borys Grinchenko Kyiv University's experience in using digital tools to check the academic texts for plagiarism. Since 2015, the Borys Grinchenko Kyiv University has been one of the first in Ukraine to use digital tools in educational and research activities to check the academic texts for plagiarism. One of the most convenient services was the Unicheck [20], which allowed to identify similarities, matching and overlaps in the academic texts of higher education seekers and academic staff. Another digital tool that has been integrated into the Borys Grinchenko Kyiv University's activity since 2020 is StrikePlagiarism [19].

By all the below indicators, as well as found text matches, Unicheck and StrikePlagiarism operate almost the same:

- speed
- usability
- check on remote server
- possibility to view borrowed text in the original document
- different file formats for download
- possibility to delete unnecessary references before checking
- counting the number of identical words (number of fragments)
- finding letters from other alphabets in the document, provision of relevant notification and replacement before checking
- quote detection
- program configuration options
- possibility to add a document to the University database
- batch check

They differ only in software interfaces, coefficients of check results and commercial offers of the developers.

Analysis and comparison of technical characteristics of individual services were not the subject of this study, but it is interesting

to evaluate various services, in particular the Unicheck system, which was made by Foltýnek et al. [9]. Regarding the list of other services, the Borys Grinchenko Kyiv University Library accumulates information about the various services available to check text matches for plagiarism on its website [11]. Students of the Institute of Philology are also offered 10 useful services for checking English-language sources for plagiarism [1]. However, it remains a problem to check the scientific works of students of Chinese philology, because the services available in Ukraine reveal matches only within European languages.

At the Borys Grinchenko Kyiv University, all scientific works recommended for publication by the Academic Council of the Borys Grinchenko Kyiv University; 16 scientific periodicals of the University; PhD and doctoral dissertations submitted for defense in specialized scientific councils of the University; scientific works submitted to competitions of scientific works; conference materials, etc are checked. The Borys Grinchenko Kyiv University also checks student qualification works with the help of digital tool Strike-Plagiarism, which provides an opportunity to check text matches using the internal databases of qualification works of other universities, with which the developer concluded cooperation agreements. Students of the Borys Grinchenko Kyiv University independently upload their works to the Database of Qualification Works, after which the responsible persons in the structural units check them.

In January-September 2021, 408 student works were checked (bachelor's, master's works, course works, diplomas, competition papers), 230 of them were checked using the Unicheck service and 178 using the Strike Plagiarism service. Other research papers were checked by the Library staff, namely: it is better to combine and write dissertations for the degree of Doctor of Philosophy and Doctor of Science – 36 works submitted for recommendation by the Academic Councils of institutes/departments and the university – 73 (66 – Unicheck, 7 – Strike Plagiarism). In total, as of September 29, 2021, 703 documents (in 2020 – 600) of 48,597 pages (in 2020 – 50,250 pages) were checked using the Unicheck service, 215 documents were checked using the Strike Plagiarism service.

It should be noted that although the Borys Grinchenko Kyiv University has all the necessary prerequisites (regulations, relevant training, system for plagiarism detection using digital tools), there are still cases of detection of plagiarism in the academic texts of higher education seekers and the academic staff, which necessitated a separate research.

3 METHODOLOGY

The research was conducted through a survey (G Suite service) with pre-defined questions (14) among the representatives of all institutes/departments (10) of the university. The respondents (a total of 1,171) were 529 students, 114 master's students, 84 postgraduates, 396 academic staff and 48 researchers of the university.

Ethics issues. The samples were formed randomly: students, master's students, postgraduates, academic staff and researchers of the university received e-mails via corporate mail (secure channel) which included a link to online questionnaires. The respondents voluntarily participated in the survey and had the opportunity not to take part in the survey. The questionnaires did not contain the data allowing to identify the respondent (the function of collecting

e-mail addresses was turned off), and the information received from the respondents was not passed on to third parties. Respondents' answers were analyzed in aggregate according to the category of respondents (figure 1).

The students and lecturers of the Faculty of Law and International Relations and the Institute of Philology were the most active.

The questions of the questionnaire were aimed to meet the following research tasks:

- to determine the level of use of digital tools by students, master's students, postgraduates, academic staff and researchers of the university for checking the academic texts for uniqueness;
- to identify issues that arise in the course of using digital tools to check the academic texts for uniqueness;
- to outline ways to address the identified issues in order to reduce the number of cases of plagiarism/self-plagiarism.

4 RESEARCH FINDINGS

To the question "In your opinion, is it necessary to check academic texts for uniqueness using digital tools?" (figure 2): 50.8% of respondents answered – "Yes, always", 43.3% – answered "Sometimes", 5.9% – answered "No", which indicates the awareness of the majority of respondents of the need to check academic texts for uniqueness using digital tools.

However, it is worth considering some indicators among respondents: 19% of students answered "No". Analyzing the correlation of these results with a previous survey [8] and the results of checking student qualification works by institutes/departments, it can be argued that there is a problem associated with quite frequent detection of plagiarism in student academic texts, and the need to implement additional awareness-raising activities aimed at forming a responsible attitude toward their educational and scientific activity and principles of academic integrity.

At the same time, it should be taken into account that among the academic staff there were those who answered "No" to the above open-ended question of the questionnaire, stating that they did not see the need to check their works for uniqueness, as when writing them they did not use inaccurate text borrowings, and therefore the need to check the texts with additional means was irrelevant for them. We believe that such a conscious attitude toward the design of results of their intellectual activity can be considered a goal for all participants in the educational and scientific process, which is implemented at universities.

However, for most respondents the more urgent objective in the short term is to master the skills of using digital tools to increase the percentage of uniqueness of own texts, and therefore it logically necessitates the study of existing experience and issues that arose in the course of acquiring such experience. The analysis of answers to the question "Do you use digital tools to check your works for uniqueness?" (figure 3) generally showed the average level of use of digital tools to increase the level of uniqueness of academic texts: 60% of postgraduates, 52% of researchers, 43% of students, 41% of academic staff, 33% of master's students answered that they always use digital tools to check their academic texts for uniqueness.

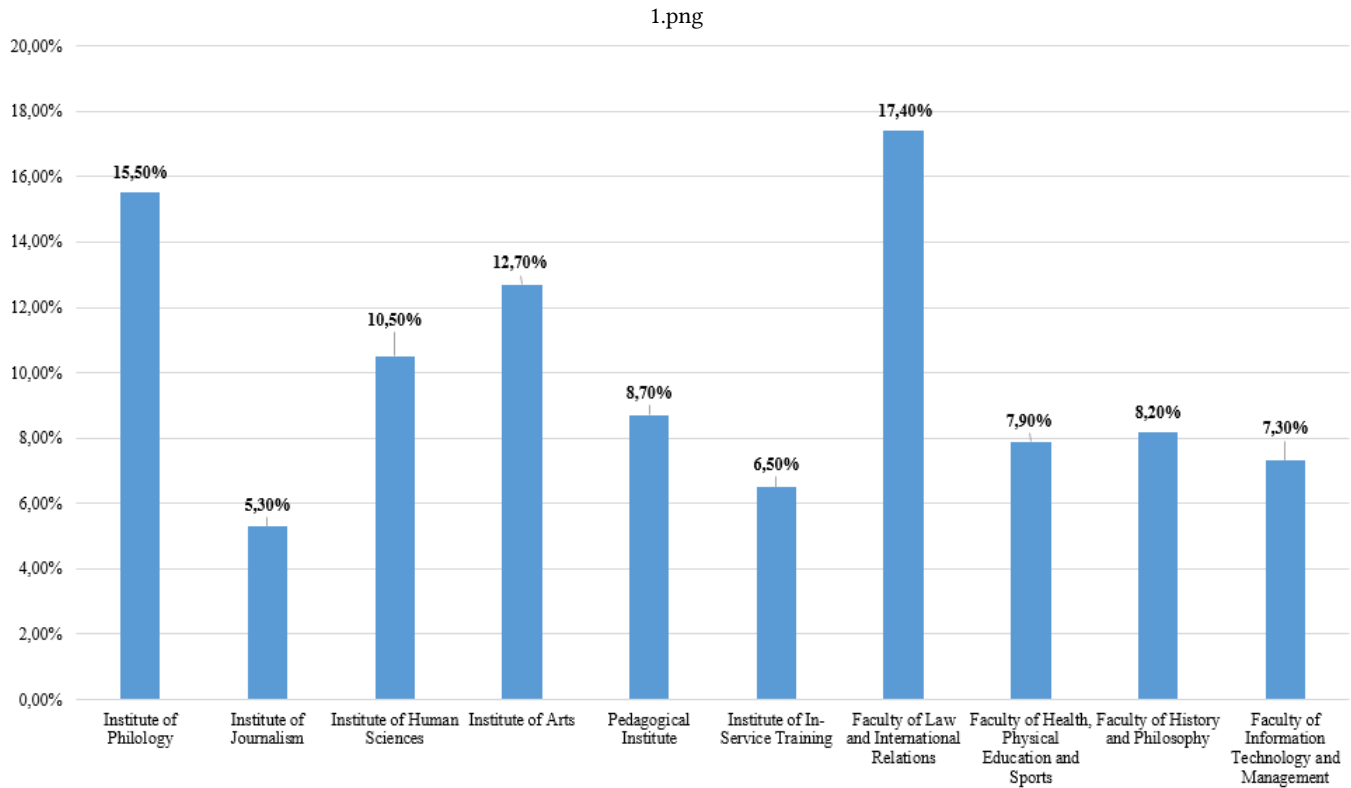


Figure 1: Diagram of the received answers in percentage terms.

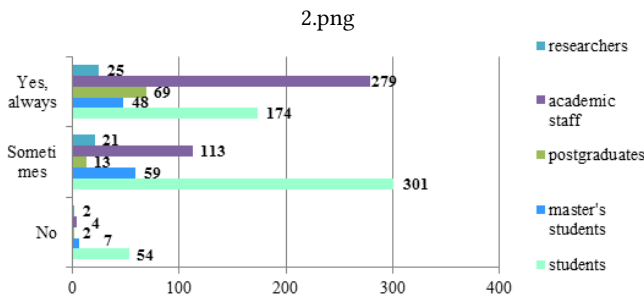


Figure 2: Respondents' answers to the question "In your opinion, is it necessary to check academic texts for uniqueness using digital tools?"

In general, we can see a positive trend of gradual formation of academic culture, which is based not only on understanding the basic principles, but also on specific skills.

The next step was to identify the digital tools that were most often used by the respondents and proved to be the most effective. Thus, according to the popularity of use of digital tools by the respondents to check academic texts for uniqueness, they were distributed as follows: 22% Antiplagiat; 16% Unicheck; 12% eTXT Antiplagiarism; 10% Advego Plagiatus; 5% each – Strike Plagiarism, Content Watch, PlagiarismCheck (23% of respondents answered that they did not use any, 2% answered "Other"). These services were

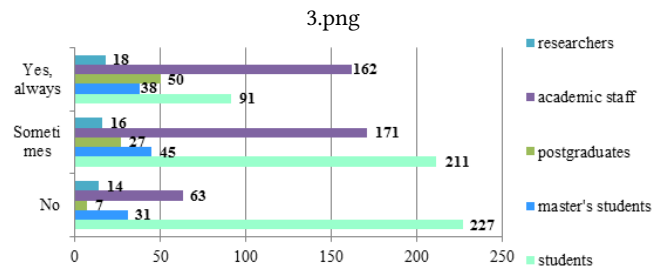


Figure 3: Respondents' answers to the question "Do you use digital tools to check your works for uniqueness?"

presented by the Library staff at various trainings, so in general, respondents are familiar with various digital tools, including those that are charge-free, for checking academic texts for uniqueness.

The distribution among respondents of digital tools by efficiency of checking academic texts for uniqueness generally correlates with answers to the previous question (figure 4): 17% Antiplagiat, 16% Unicheck, 4% eTXT Antiplagiarism, 4% Advego Plagiatus, 3% Content Watch, 2% Strike Plagiarism, 1% PlagiarismCheck (14% answered "Did not use any").

The survey showed that the users are mostly familiar with the Antiplagiat and Unicheck anti-plagiarism systems. First of all, it is because the users of Borys Grinchenko Kyiv University are well acquainted with the work of free services and often use them. This

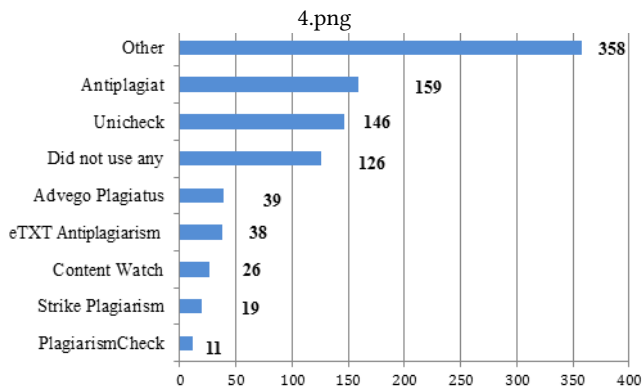


Figure 4: The distribution among respondents of digital tools by efficiency.

is the result of the work of the library staff within the School of Academic Integrity and carrying out various activities for students.

Quite a large percentage (39%) of respondents answered “Other”, giving detailed answers, according to which:

- Some respondents found it difficult to compare different tools for effectiveness, because they used only one of those listed. This necessitates the implementation of activities aimed to demonstrate the advantages and shortcomings of different software, which will expand the pool of tools for all participants in the educational and scientific process.
- Some students noted that they used charge-free Russian software to check their texts. This necessitates the dissemination of information on charge-free Ukrainian and foreign software.
- Digital tools for checking academic texts for uniqueness, which were not on the list, were named, in particular: Grammarly Plagiarism Premium (works well with English-language content); Texty (is effective for data array analysis). This necessitates the analysis of the mentioned tools and making the decision to add them to the list of recommended ones.
- Also, some of the respondents stated that they submitted their works for checking to the Borys Grinchenko Kyiv University Library, and therefore did not see the need to master the skills of working with similar digital tools. And while the library does provide quality services of checking the academic texts for uniqueness, we still believe that the opportunities for higher education seekers, researchers and educators to use digital tools autonomously should be increased.

Responding to an open-ended question about the benefits of certain digital tools designed to check the academic texts for uniqueness, the respondents noted the following about the most popular tools:

- Antiplagiat: user-friendly interface; covers a large number of sources for thorough checking of texts for uniqueness; speed of data processing; detects grammatical errors. Shortcomings: recognizes fixed expressions and phrases as plagiarism.
- Unicheck: user-friendly interface; indicates in detail the possible variants of similar texts for each sentence; convenient

and clear online report on the presence of text matches; support for different text formats. Shortcomings: recognizes citing legislation as plagiarism.

- Advego Plagiatius: user-friendly interface; detects not only the uniqueness of the work, but also spelling mistakes, repetitions, double space; does not have limitations as for the amount of text; separately identifies citations and plagiarism. Shortcomings: a limit of 3 checks per day.

Among the advantages of other digital tools (eTXT Antiplagiarism, Content Watch, PlagiarismCheck, StrikePlagiarism.com), the respondents mentioned ease of use, accessibility, lack of advertising. At the same time, it was noted that no software can provide a comprehensive report and requires expert analysis.

In the course of studying which academic texts are most often checked for uniqueness using digital tools, the following was found (figure 5).

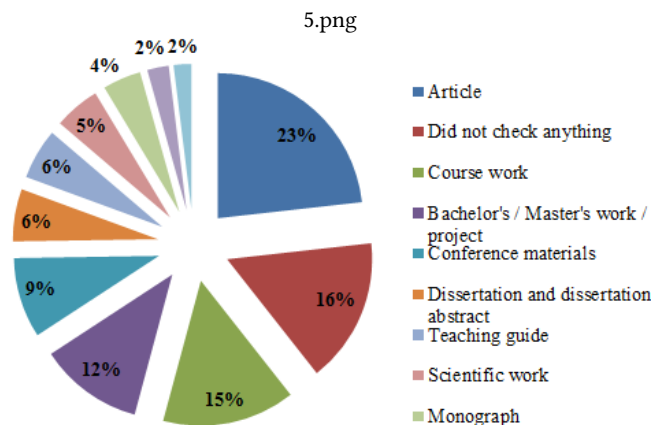


Figure 5: Academic texts which are most often checked for uniqueness using digital tools.

The answers of the respondents evidenced the fact that the Borys Grinchenko Kyiv University’s requirements for texts submitted to the Scientific Councils and for defense promote the use of digital tools to increase the percentage of texts’ uniqueness. It is important to note that answering the following question, 55% of respondents said that they checked their works for uniqueness on their own (including 65% of students, 59% of academic staff, 64% of master’s students, 53% of postgraduates, 41% of researchers), that demonstrates the effectiveness of previously implemented activities (in particular, activities implemented by the Library and the School of Academic Integrity), aimed at forming the necessary competencies for self-checking of texts for uniqueness.

After checking their texts for uniqueness, in case of detection of inaccurate borrowings, 51% of respondents eliminate them completely, 32% – partially, 15% – do not change anything, 12% of respondents answered “Other” (of which 76% of researchers; 74% of postgraduates, 69% of academic staff, 57% of master’s students, and 40% of students eliminate the inaccurate borrowings completely). It turned out that the check itself is often not enough to increase the percentage of uniqueness, which is explained by the answers to the following question: “Name the problems you encountered

when using digital tools (software) to check the uniqueness of your works” (figure 6).

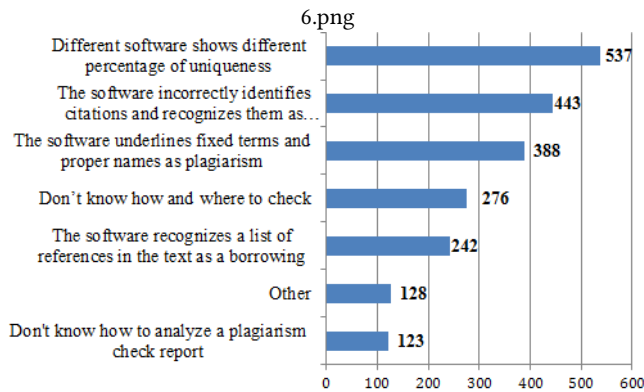


Figure 6: Respondents’ answers to the question “Name the problems you encountered when using digital tools (software) to check the uniqueness of your works”.

Given all the difficulties identified, it can be concluded that digital tools can only be used as an aid for detecting borrowings/similarities/matching, but the final decision on the presence or absence of plagiarism can be made by either the author or the review team.

To the question “What ways do you see to address these problems?” (figure 7) 37% of respondents answered: “To conduct more practical classes on the use of digital tools to check for plagiarism”, 32% – “To conduct more practical classes on the preparation of bibliographies and correct citations”, 24% – “To conduct more practical classes on analysis of reports on plagiarism checking”.

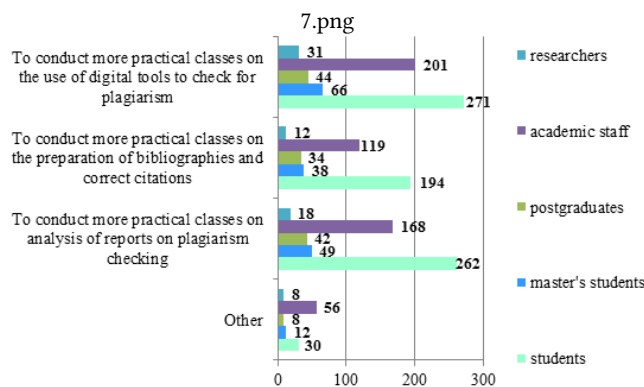


Figure 7: Respondents’ answers to the question “What ways do you see to address these problems?”.

7% of respondents answered “Other”, stating their proposals, in particular to:

- Involve the staff in the research module in the framework of advanced training, which is designed to develop relevant skills, and to create separate training courses for higher education seekers.

- Develop relevant guidelines on the use of digital tools for checking academic texts for uniqueness and place them on the university website.
- Involve the responsible person in the analysis of check results before issuing the certificate.
- Create own anti-plagiarism software, which would take into account all the current shortcomings (in the future this could be done by master’s students majoring in Information and Analytical Systems).

To the question “Did you participate in the activities implemented by the University Library and the School of Academic Integrity of the Scientific Society of the University dedicated to the use of digital tools to check the uniqueness of scientific works?” 30% of respondents answered “Yes” and 70% – “No”. At the same time, those respondents that participated in the activities (97%) answered that they were satisfied with the learning outcomes, which indicates the quality of the activities.

These results highlight the need for further systemic work on forming the necessary skills that will facilitate the writing of unique academic texts by higher education seekers and staff. In particular, inquiries were collected from different categories of respondents, according to which all categories of respondents are interested in the topics “Preparation of bibliographies and rules of correct citation”; “How to properly check the work for plagiarism? What digital tools are better to use?”; “How to analyze the results of text checking by digital tools?”. In addition:

- Master’s students are interested in the topics: “How does professional dishonesty affect the individual?” and “Self-plagiarism and where is the boundary?”.
- Postgraduates are interested in “Introducing academic integrity in the educational process (values, culture of citation), as well as how to avoid self-plagiarism”; “How to protect yourself from academic fraud: avoiding publication in pseudo-scientometric journals”; “Familiarization with European anti-plagiarism software”.
- Academic staff is interested in “What to do when the system recognizes fixed terms: dynamometer, thermometer, etc. as plagiarism”; “Optimization of working with plagiarism checkers. Methodology (or procedure) of checking for uniqueness and elimination of shortcomings of the text”.
- Researchers are interested in the “Experience of checking for plagiarism in Europe”; “How to correctly refer to previous own works and materials created in co-authorship”.

Furthermore, according to statistics provided by the Borys Grinchenko Kyiv University Library, which checks scientific texts for plagiarism, the highest percentage of originality is found in technical and artistic sciences. First of all, this is because anti-plagiarism systems detect only text matches, but notes, charts, formulas, computer codes, etc. are not processed. As for the level of user satisfaction depending on the subject area and how technical tools identify direct citations and paraphrases allowed in different areas, they can be the part of a separate study. In the practice of the Borys Grinchenko Kyiv University Library there is an opportunity to adjust the settings of the anti-plagiarism system to increase / decrease the required number of words to identify text matches as plagiarism.

At present, automated plagiarism testing systems are used at Borys Grinchenko Kyiv University only as an auxiliary aid, and the final decision on the presence or absence of plagiarism is made by an expert commission. In the Strike Plagiarism and Unicheck systems, to which access is subscribed at the university, it is possible to make changes to the settings when determining the required number of words to detect text matches. As a rule, not less than 8 words are determined.

In general, at Borys Grinchenko Kyiv University the check of academic texts is applied in two stages: the first stage is the verification of scientific texts by automated systems, the second is the analysis of experts' verification reports on relevant topics. At the same time, we understand that in world practice the concept of plagiarism of the text is different from the plagiarism of a research result. However, this topic will be the subject of our further research.

The survey results showed a sufficient level of digital skills ensuring the detection of plagiarism in academic texts and allowing to implement measures aimed to improve the internal quality assurance system of educational and scientific work. Thus, during the first qualifying round of the prestigious Ukrainian Competition of Student Research Papers in the Fields of Knowledge and Specialties for the 2021/2022 academic year, held at the Borys Grinchenko Kyiv University (the winners of this competition are considered when determining the rating of Ukrainian universities), there was a launch of the algorithm for detecting the absence/presence of academic plagiarism in the student research papers, according to which all actors of the process became responsible for compliance with principles of academic integrity, in particular [6]:

Students preparing research papers for the competition:

- observe the principles of academic integrity at all stages of preparation of the research paper;
- check research papers using specialized software and analyze the results obtained for the absence/presence of academic plagiarism, given that all borrowings must be referenced.

Students' supervisors:

- monitor students' observance of academic integrity at all stages of preparation of research papers;
- before submitting student research papers for the review to the departments, ensure their checking with specialized software Unicheck/StrikePlagiarism and analyze the results obtained for the absence/presence of academic plagiarism, given that all borrowings must be referenced;
- bear the responsibility for observance of the principles of academic integrity by students supervised.

Department chairs:

- ensure the checking of student research papers at the level of university structural units using specialized software Unicheck / StrikePlagiarism and conduct expert evaluation of the check results for the absence/presence of academic plagiarism in research papers, given that all borrowings must be referenced;
- reject the works in which academic plagiarism is detected from the I (first) round of the Ukrainian Competition of Student Research Papers in the Fields of Knowledge and Specialties for the 2021/2022.

Heads of selection commissions:

- ensure quality selection of the best student research papers, including through analyzing the reports on automated checking of papers for the absence/presence of academic plagiarism, given that all borrowings must be referenced;
- withdraw student research papers from the competition in case of detection of academic plagiarism during the review.

It is envisaged that such systemic activity will ensure quality selection of the best papers and reduce the likelihood of detecting plagiarism.

5 CONCLUSIONS

According to the results of the survey, 522 students out of 529 surveyed and 356 academic staff and researchers out of 445 surveyed check their scientific works for the absence/presence of academic plagiarism using various specialized software.

It was determined that academic integrity is an integral part of the corporate culture of Borys Grinchenko Kyiv University, and therefore considerable attention is paid to the implementation of its principles. In particular, the internal system of quality assurance of educational and scientific work involves the checking of academic texts for uniqueness using digital tools, which necessitates the formation of appropriate skills among all participants in the educational and scientific process.

According to survey results, the average level of use of digital tools was determined among all categories of respondents (students, master's students, postgraduates, academic staff and researchers of the university): most of them have the relevant knowledge and experience in checking their texts. In order to increase the level of use, it is proposed to implement appropriate activities in all departments of the university, the content of which would be aimed to inform higher education seekers and staff about the opportunities for plagiarism detection in academic texts (most of them know only 1–2 digital tools); to describe the advantages and shortcomings of various software; and, most importantly, to develop research culture based on integrity and professional ethics according to which the best way to avoid plagiarism is to prevent it when writing a text.

The main problems that most often arise in the course of using a particular digital tool to check the academic texts for uniqueness were also identified. However, it is noted that even taking into account the existing shortcomings (which are gradually eliminated by developers), their use is an objective necessity, which is based on the need for self-regulation of educational and scientific activities by higher education seekers, academic staff and researchers. At the same time, an important conclusion is that even the best fee-based resources can be used only as an aid to identify borrowings, similarities, matching, etc. in academic texts. The final decision regarding the presence or absence of plagiarism can be made only based on the opinion of an expert or expert team (as is the case at the university, in particular when checking dissertations submitted for defense). In case of independent checking, the authors must take into account the features of digital tools they use, as well as know how to analyze the generated reports. This necessitates conducting training activities aimed to form the skills of independent use of digital tools to check the texts for uniqueness by higher education seekers, academic staff and researchers.

Also, a list of topics for trainings, which can be conducted by external and internal experts, taking into account the needs of different categories of respondents in order to form their ability to organize their educational and scientific activities in good faith was developed.

The study of user experience related to using digital technology for checking academic texts for plagiarism contributed to the improvement of the internal system of quality assurance of educational and scientific work. In particular, the algorithm for detecting the absence/presence of academic plagiarism in the research papers to be submitted to the Ukrainian Competition of Student Research Papers in the Fields of Knowledge and Specialties in 2021/2022 academic year, which is held in Ukraine in order to support the gifted students and create conditions for their creative growth, was developed and launched.

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