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Digital Bibliographic Information Platforms - a New Approach to Research Methodology

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Abstract

In the current academic landscape, scientific research results are published through both traditional print and electronic formats, overseen by accredited institutions such as publishers and universities. This study explores the use of modern bibliographic data platforms, with a focus on Mendeley, to enhance the preparation and publication of scientific research in accordance with international standards. A comprehensive analysis was conducted involving 84 participants—including master's students, PhD candidates, and researchers from Karshi State University—to assess their awareness and application of bibliographic tools and methodologies. Findings reveal that while 73% of respondents recognize the IMRAD structure as beneficial for scientific writing, 27% lack familiarity with international formatting standards. Furthermore, a significant number of participants were either unaware of or lacked proficiency in using virtual libraries like Mendeley, Google Scholar, and ResearchGate. Only 18% used these tools effectively, while 54% had only partial knowledge or usage experience. The research also identifies a practical gap in integrating citation tools within commonly used software like Microsoft Word. Based on these insights, the study highlights the need for targeted training programs and workshops on research methodologies and bibliographic tools in higher education. Encouraging educators and researchers to utilize platforms such as Scopus, Science Direct, and Mendeley can enhance scholarly productivity and visibility. Ultimately, the adoption of modern bibliographic systems plays a critical role in improving the quality and credibility of academic publications and advancing scientific communication.

Keywords: Article, Bibliographic, Mendeley, Literature, Publication, Scientific.

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Introduction

Nowadays, the preparation and publication of scientific research results occur in two primary formats: traditional (in print) and electronic. The process of preparing and publishing articles and theses is overseen by organizations with special permissions (publishers, research institutes, and higher education institutions, etc.). In this article, we will briefly outline the research findings on utilizing modern bibliographic data platforms for preparing scientific research results for publication and the methodology of using Mendeley software (Visser et al., 2021).

A bibliography is a list of sources—such as books, articles, and websites—that a writer has used or referred to while researching and writing a document. Typically found at the end of academic papers, essays, books, or research reports, it provides essential information like the author’s name, the full title of the source, publication details (such as the publisher’s name, place of publication, and date), and, when relevant, page numbers or a URL/DOI for online sources. These key elements help ensure accuracy and consistency in citing materials.

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The main purposes of a bibliography are to credit original authors, helping to avoid plagiarism, and to assist readers by guiding them to the sources for verification or further study. It also demonstrates the writer's research efforts, showing that the work is grounded in credible and diverse sources. A well-prepared bibliography reflects academic integrity and supports the credibility of the overall work.

Currently, the digitalization of activities in industrial sector (Chudaeva et al., 2019), management systems using information technologies (Alavi & Gallupe, 2003), big data analytics and supply chain efficiency (Gunasekaran et al., 2017), information technologies in the healthcare system (Chaudhry et al., 2006), digital transformation and entrepreneurship, the application of information technologies in the banking sector (Shanti et al., 2023), and the use of digital technologies in the education system are being studied, but good results are not being achieved (Timotheou et al., 2023).

Main part. A scientific article is an independent outcome of scientific research, presenting the author's thoughts and reflections based on the study of scientific views and hypotheses known to the public to date on a relevant scientific problem (text, audio, video, etc.). For individuals pursuing high goals, the significance of a scientific article is paramount. In scientific articles, the researcher's personal contribution to the development of the theoretical or practical foundations of contemporary scientific fields is articulated as clearly as possible (Ahrens & Chapman, 2006).

As a result of research on bibliography design and Visual Analytics online platforms, they have been proven to be the most effective tools (Heer & Shneiderman, 2012). However, when preparing some scientific works for publication, researchers cannot fulfill international requirements in creating a bibliography (Pranckutė, 2021). Analyzes and recommendations are given on the use of the system in research to improve the quality of scientific work of students (Kaklauskas et al., 2013) to search for research links in their journals and to organize training on access to the Mendeley desktop.

In the initial part of the article, a brief and concise annotation (summary of the article) in international languages, along with keywords, should be included (Ovsiannikov et al., 1999). A scientific article is typically divided into several sections for information. The introductionof the article describes and justifies the relevance of the topic under discussion, as well as presents the field, object, and subject of the research, the purpose of the research, the tasks, the resolution of the posed problem, and the theoretical and practical significance of the proposed solution.

Nowadays, international conferences and journals typically accept articles, theses, and monographs that adhere to the IMRAD (Introduction, Methodology, Results, And Discussion) format (Piran & Tran, 2024). This article aims to develop practical skills related to the modern bibliographic data platform Mendeley and its methodology for compiling the list of references cited in all articles and theses (Kusumaningsih et al., 2024). Mendeley (Elsevier) is a platform for managing bibliographic data that facilitates the creation of a social network for researchers based on its database (articles, theses, monographs, etc.), allowing users to store, organize, and annotate research data, easily generate citations, and swiftly change citation styles.

To enhance scientific and innovative activities, it is essential for professors and educators to prepare and publish scientific articles in journals indexed in international scientific and technical databases such as Scopus, Science Direct, and Web of Science (Wardat & AlAli, 2025). This will foster their publication activity as researchers and enrich their personal and

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professional information space utilizing the capabilities of Scopus, Science Direct, and Mendeley systems.

Before studying the main functions of Mendeley and its usage methodology, users need to understand international bibliographic standards. Below, we list the common types of bibliographic standards. MLA (Modern Language Association) is primarily used for creating bibliographic lists in the fields of language, literature, art, and other humanities. NLM (National Library of Medicine) is a bibliographic style often developed by the International Committee of Medical Journal Editors (ICMJE) and is mainly used for compiling bibliographies in the publication of scientific research results in the medical field.

ACS (American Chemical Society) is primarily used for citations in chemistry articles and has three variants of the style, depending on the choice of the scientific journal's editorial board. The American Chemical Society developed the ACS style for academic writing in chemistry, utilizing both numbered and author-date citation systems. APSA (American Political Science Association) is mainly used in research related to political science.

IEEE (Institute of Electrical and Electronics Engineers) is a professional organization that supports many fields of engineering, computer science, and information technology. In addition to publishing journals and conference materials, IEEE establishes several standards for various fields. The IEEE citation style includes in-text citations indicated in square brackets that refer to the full citation listed at the end of the paper, with the bibliography organized by numbers rather than alphabetically.

Methods

This article is founded on a survey concerning the utilization of bibliographic data platforms by scholars and master's students involved in scientific research (refer to Table 1).

Table 1. Research Findings on the use of Bibliographic Data Platforms for Preparing Scientific Activity Outcomes for Publication in Accordance with International Standards.

№	Questions	Answers			
1	Your age	23-28	29-38	39-53	54-65
2	Your professional – academic activity	Master's student	Doctoral student	Independent researcher	Scholar (PhD, DSc)
3	Are you familiar with the IMRAD format for writing articles?	No	Yes, I have some understanding	I know it is an international requirement	Of course, I know; all my work adheres to the IMRAD format.
4	Do you know about the virtual library of the past (Mendeley, Google Scholar, ResearchGate)?	No, I don't know	Yes, I have heard of it, but I don't know how to use it	I know about it and use it to some extent	Of course, I know and use all of them.
5	How do you compile your bibliography when writing article?	I write it down one by one	I use popular scientific platforms	I just copy and paste.	I use a bibliographic data platform

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6	Are you familiar with international bibliographic standards (GOST, APA, MLA, etc.)?	No, I want to learn about them.	Yes, I have heard of them	I have some information	Of course, I know them.
7	Do you know about the Mendeley bibliographic data platform?	No, I want to learn about it.	Yes, I have heard of it	I have heard of it, but I don't know how to use it	Of course, I know and use it.
8	Do you know how to automatically generate bibliographies in Mendeley?	No, I want to learn about it.	Is there such a program?	I have heard of it, but I don't know how to use it	Of course, I know and use it.

Most of the respondents participating in the research were professionals engaged in scientific activities, thus we left the section clarifying the individual open. This study was organized in collaboration with master's students, doctoral candidates, and researchers involved in scientific research at Karshi State University, and the survey was conducted online. A total of 84 respondents participated in the study, and we will now analyze the information regarding their professional and scientific activities (Figure 1). As shown in the following diagram, 33 of the respondents (39.3%) were pedagogical master's students. Additionally, 25 respondents (29.8%) were included in the survey due to our researchers' interest in the topic. From the analysis of the survey regarding the use of bibliographic data platforms for preparing research results for publication according to international standards, we can understand that this topic is relevant and holds significant importance in conducting scientific research today.

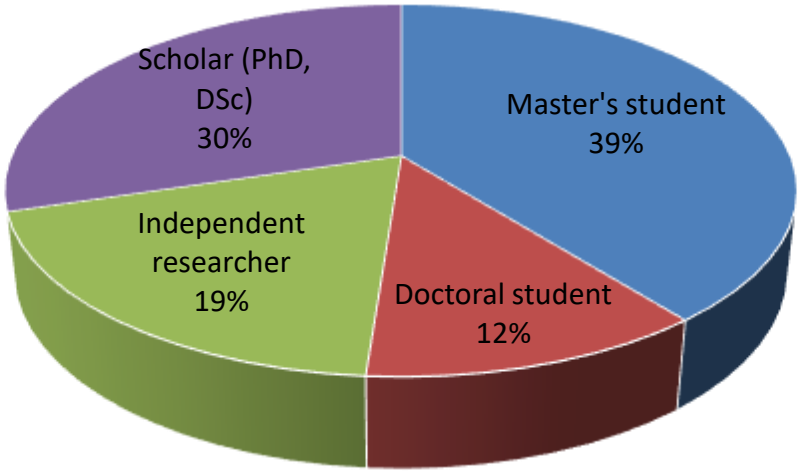

Figure 1. Information About the Professional and Scientific Activities of the Respondents

In analyzing the age data of respondents, we observe that individuals aged 29-38 engaged in scientific research activities make up the majority (see Figure 2). Statistical analyses reveal that the average age of respondents is 38.5 years. This implies that for those involved in scientific research, half of their lifetime is dedicated to this field. To reach this conclusion, we utilized

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statistical data on the average life expectancy of the population of Uzbekistan, published by international organizations that study global life expectancy.

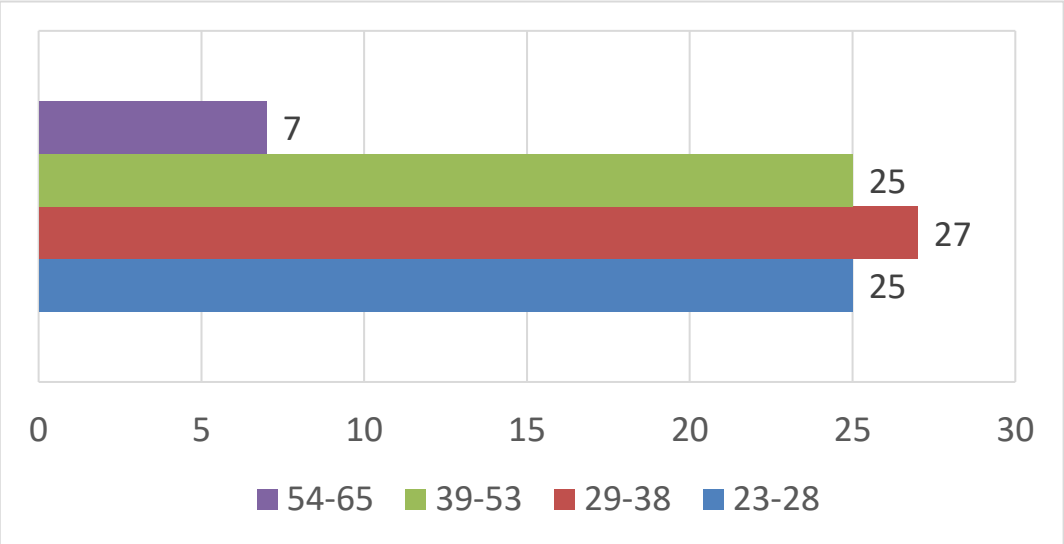

Figure 2. Analysis of Data by Age

Organizations that publish international scientific research typically accept articles structured according to the IMRAD format. In our survey, we collected responses to the question, "Are you aware of the IMRAD format in article writing?" (Figure 3).

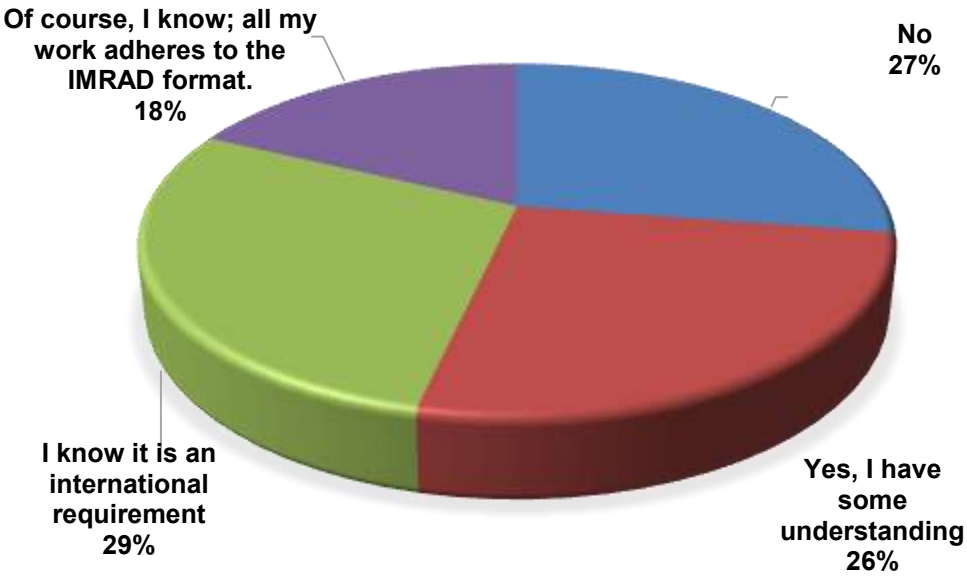

Figure 3. About the IMRAD template

During the research, the statistical data collected indicated that 73% of respondents viewed the IMRAD format in article writing as a positive outcome from a logical perspective. However, 27% of respondents (22 individuals) seemed to lack knowledge of international standards for formalizing scientific research papers, with the majority of them (16 out of 22, or 73%) engaged in pedagogical activities. The average age of these respondents was found to be 25 years,

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highlighting the necessity of incorporating brief courses on research methodology for students in higher education institutions and conducting classes in a practical workshop format.

The subsequent survey in the research concentrated on scholars' virtual libraries (Mendeley, Google Scholar, ResearchGate), clarifying respondents' research outcomes and their proficiency in utilizing social networks related to academic fields. The analysis revealed that 24 respondents (28.6%) had heard of virtual libraries but lacked the skills to use them, while 21 respondents (25%) confirmed they had no information about them at all. Among those who participated in the survey, 24 individuals (28.6%) stated that they partially used virtual libraries for publishing their research, and 15 (18%) responded positively to the survey question. The analysis of the four questions posed in the surveys indicated that 54% of respondents did not possess the skills to utilize virtual libraries.

The results of the survey on the use of bibliographic data platforms for writing articles are illustrated in the following diagram (Figure 4). In this instance, 54% of respondents reported having partial knowledge about the survey concerning the use of bibliographic data platforms and are unsure how to utilize them, while 46% indicated that they partially employ modern software tools to create bibliographies in their scientific articles. The findings reveal that the current utilization of bibliographic data platforms in publishing scientific research results is inadequate, and addressing this issue falls primarily on higher education institutions and research institutes.

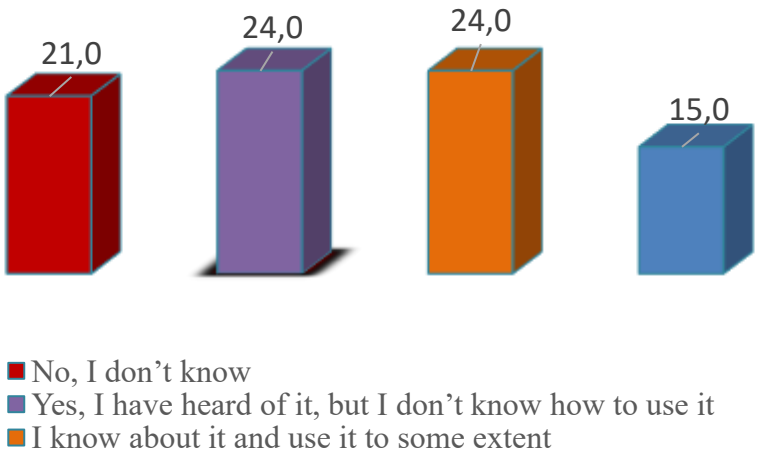

Figure 4. Usage Of Bibliographic Information Platform

The respondents answered the questions titled "How do you compile your bibliography when writing an article?" and "Are you familiar with international bibliographic standards (GOST, APA, MLA, etc.)?" as follows. From the responses to these questions, we can ascertain the opinions of 36 respondents (42.9% - "I want to learn about them") regarding the application of international standards in bibliography compilation. This describes the current low competencies in shaping bibliographies.

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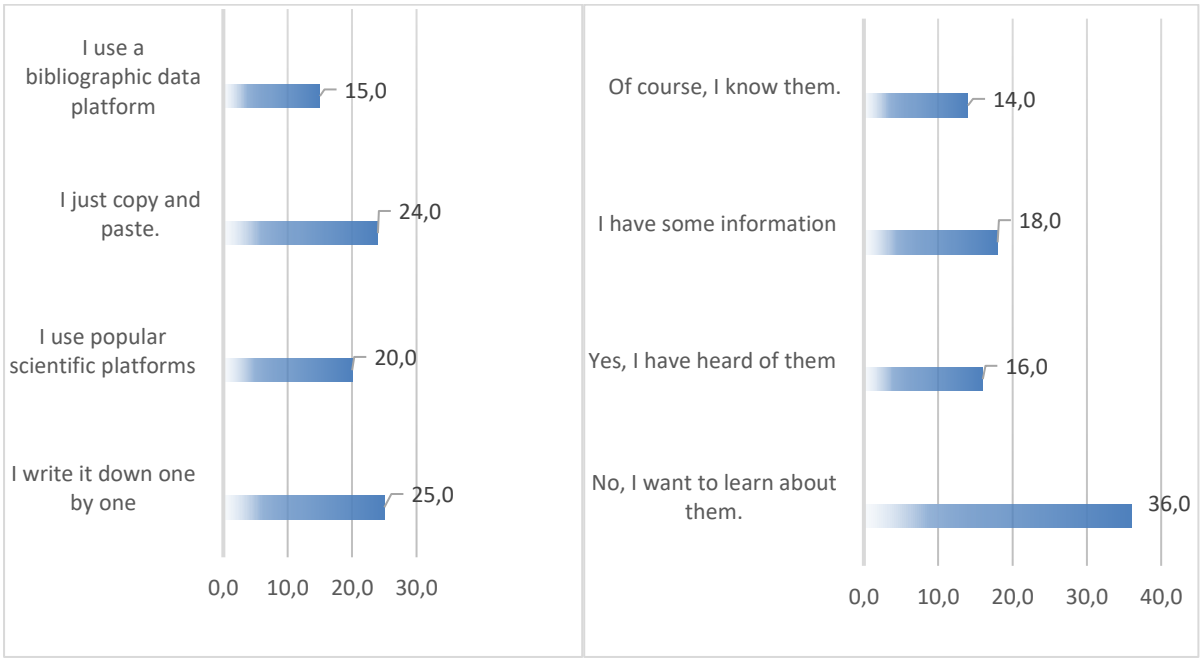

Figure 5. Usage International Bibliographic

An analysis of respondents' answers to questions 7 and 8 of the survey is presented(Figure 6) in the chart below, with 40 respondents (47%) reporting Mendeley training. This question does not provide complete information about the process of automatically creating a Mendeley bibliography, but the concept of automatically creating a literature review is given in the previous questions.

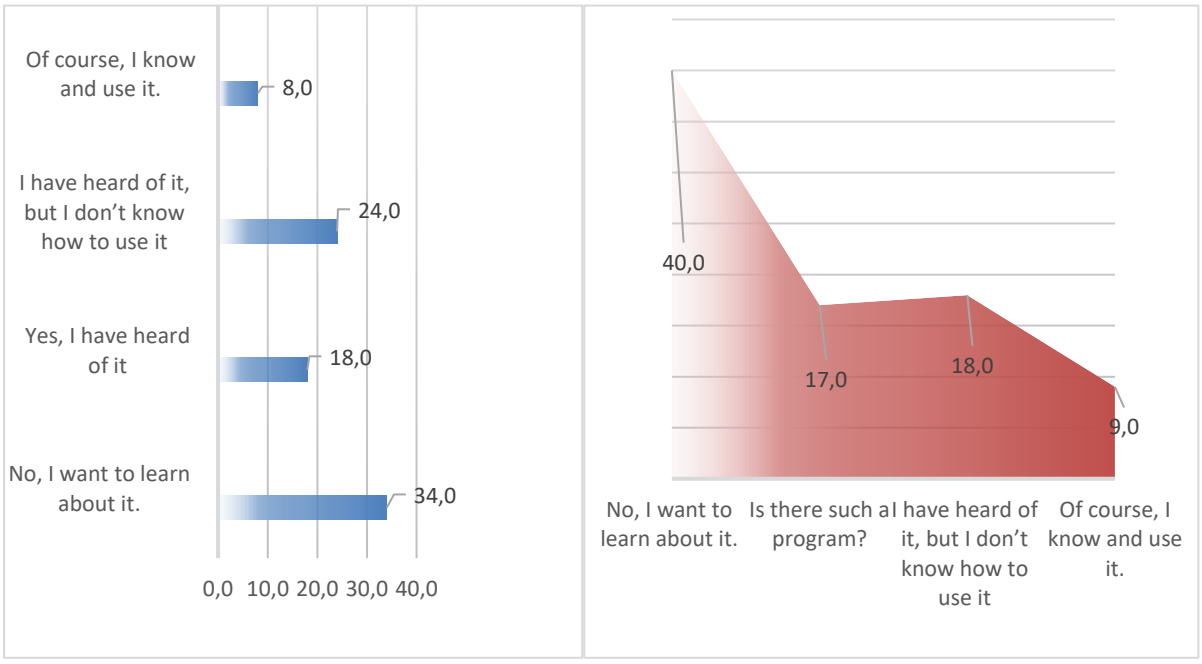

Figure 6. Usage Mendeley Bibliographic

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Procedure for Installing the Mendeley Application

To begin, download the application via this link (https://www.mendeley.com/?interaction_required=true) and execute the file. To fully activate the application, registration on the Elsevier platform is required, as these systems operate in an integrated manner. After launching the Mendeley application and activating the platform with a registered account, close the Microsoft Office applications and proceed to activate the installation of the MS Word plugin from Mendeley's "Tools"→"Install MS Word plugin" menu.

After launching the Word program, check if Mendeley is working from the "References" menu. In this case, it is verified that a separate task panel for Mendeley is allocated in the "References" menu and is active, confirming that the programs are integrated with each other. There are two methods available for importing articles: through the website and by uploading a PDF format article file to the program.

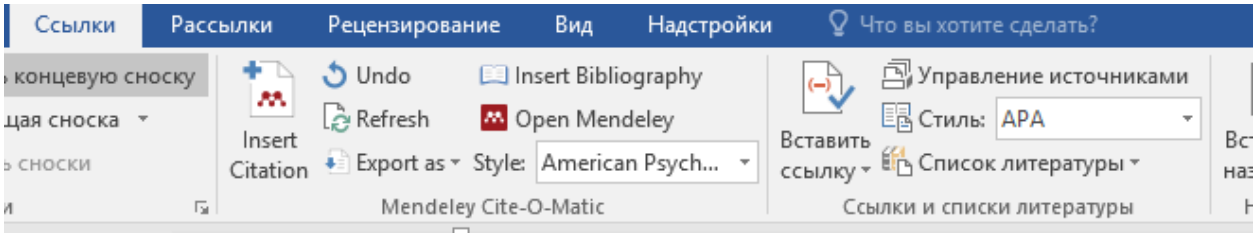

Figure 7. Menu for Creating a Bibliography in Word Software

In Word software, to insert a citation for the article being prepared, click the "Insert Citation" button in the "References" menu (Figure 7) and activate the "Go To Mendeley" button in the window that appears. Once the Mendeley program is downloaded, you will be prompted to select and mark the necessary literature. After selecting the literature, the "Cite" command from the program's menu will be activated, and the bibliography will be created by clicking the "Insert Bibliography" button in Word.

Conclusion

This research studied and analyzed the skills of respondents engaged in scientific activities related to preparing research results for publication. The findings examined the use of bibliographic data platforms, and practical guidelines were provided for forming articles based on international standards. Promoting the use of modern software for preparing scientific research results for publication and reinforcing the requirements for authors to utilize bibliographic data platforms in publishing houses ensures the popularization of the work of our country's scholars.

Recommendations

We will examine the possibilities for the development of a comprehensive bibliography, we will analyze the main conceptual framework of bibliography[24], and we will develop a comprehensive bibliography. It is necessary to implement the development of a program that will enable us to develop the necessary public works that will enable us to work in the field of health and safety.

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