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METHODOLOGY OF WRITING SCIENTIFIC ARTICLES BY STUDENTS OF HIGHER PEDAGOGICAL INSTITUTIONS

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Nowadays the urgent problem of education is the training of high-level specialists. To solve this problem, modern HEIs not only implement an educational program in a particular field of knowledge and specialty, but also offer students to engage in scientific research.

Research activity is characterized as a type of intellectual activity aimed at developing the creative potential of the learner. It is an opportunity for self-development and self-realization in professional activities. As a rule, one of the main results of a researcher's scientific work is a qualifying thesis. Still, intermediate or final results can be presented in the form of scientific articles published in professional journals.

Provided that the institutions of higher education train highly qualified pedagogical specialists, the methodology of preparation and writing of scientific articles has its own specifics. It has to meet all the requirements for research articles at the legislative level.

The stages of writing an academic article are well-known, but, depending on the issue of the scientific research, it can be pedagogical or professional direction. In the case when the article is pedagogical, the main emphasis is on the peculiarities of integration into the educational process of the latest technologies and methods. If the article has a proessional focus, it provides a description of the results of the implementation of a particular educational methodology or technology during its study in a particular discipline.

The results of researche can be accumulated and considered in various aspects and presented in the form of scientific articles. This knowledge will allow the future teachers not only to obtain the appropriate level of education while studying at the institute, but also will create the basis for acquiring scientific knowledge and self-realization in further scientific work.

Keywords: *scientific article, professional training, methods of writing a scientific article, stages of writing an academic article.*

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МЕТОДОЛОГІЯ НАПИСАННЯ НАУКОВИХ СТАТЕЙ СТУДЕНТАМИ ПЕДАГОГІЧНИХ ЗАКЛАДІВ ВИЩОЇ ОСВІТИ

О. Л. Протас

У сьогоденні актуальною проблемою освіти є підготовка фахівців високого рівня. Для здійснення такої підготовки, сучасні заклади вищої освіти не лише реалізують освітню програму певної галузі знань і спеціальності, а й пропонують здобувачам освіти долучатись до науково-дослідницької діяльності.

Науково-дослідна діяльність характеризується як вид інтелектуальної діяльності, який спрямований на розвиток творчого потенціалу здобувача освіти, це можливість саморозвитку та самореалізації у професійній діяльності. Як правило, одним із основних результатів науково-дослідної роботи здобувача освіти є кваліфікаційна випускна робота, але проміжні, або кінцеві її результати можуть бути представлені у вигляді наукових статей, що друкуються у фахових виданнях.

За умови, що заклад вищої освіти готує висококваліфікованих фахівців педагогічного профілю, методологія підготовки та написання наукових статей має свою специфіку, але обов'язково відповідає всім вимогам, які висунуті до наукових статей на законодавчому рівні.

Етапи написання наукової статті є незмінними, але, залежно від того, у якому аспекті висвітлюється наукове дослідження, вона може носити загальнопедагогічне або фахове спрямування. У випадку, коли стаття носить загальнопедагогічний характер, основний акцент робиться на особливостях інтеграції в освітній процес новітніх технологій та методичних прийомів. Якщо ж стаття має профільне спрямування, вона передбачає опис результатів впровадження конкретної освітньої методики або технології під час вивчення її у окрему навчальну дисципліну.

Представлені, у вигляді наукових статей, результати науково-дослідної діяльності, можуть накопичуватись та розглядатись в різних аспектах, що дозволить майбутньому фахівцю педагогічного профілю не лише отримати відповідний освітній рівень під час навчання в інституті, а й стане базою для здобуття наукового знання та реалізації себе у подальшій науковій діяльності.

Ключові слова: *наукова стаття, фахова підготовка, методика написання наукової статті, етапи написання наукової статті*

Introduction of the issue. Modern education, which is based on the principles of European integration, faces the task of quality training in all spheres of education. According to the Bologna Process, the educational process in HEIs has to reach the European level, which is based on common principles of its standardization.

The current resolution of the Presidium of the Academy of Sciences of Ukraine "On the development of science and transformation of society: a concept for Ukraine" [5] states that the modern system of higher education should not only provide quality training for its applicants, but also provide a qualitatively new level of training. It is possible by involving future specialists in scientific activities, in accordance with a system of standards that is approved in the world.

Scientific research is a kind of intellectual activity aimed at acquiring new knowledge or finding ways to apply it. In most cases, the results of scientific activity are scientific works, but only a small number of people have access to them. That is why there is a need to publish these results in another way, for example, using academic articles.

Scientific research of the students of HEIs is one of the methods of training specialists on a qualitative new level. Such work is aimed not only at the general development of higher education, but also at activating and improving skills of critical thinking, research, development of scientific intuition and sophistication of thinking,

creative approach to the perception of knowledge and their application in practice.

Students of pedagogical institutions and HEIs are constantly involved in scientific activities due to a large number of innovations. Educational transformations, constant innovations and introduction of the newest educational technologies, allow them to join scientific activity from the first courses. When conducting research, testing various methods and educational technologies, they have an opportunity to present the final results of their activities in the form of qualifying work, and intermediate results may be seen in the form of scientific articles.

Current state of the issue. The problem of formation of scientific skills by students of HEIs was studied by: S. Honcharenko, A. Kushniruk, D. Poya, V. Proshkin, V. Rakov, O. Skaf, V. Shakhov and others.

The problems of development of research activity of the applicants in the historical aspect were studied by: A. Aleksyuk, L. Vovk, S. Zolotukhina, I. Zyazyun, O. Martinenko and others.

L. Avdeev, N. Amelin, I. Ivashchenko, F. Orekhov, N. Yakovlev wrote about research activity as one of the elements of high-quality training of specialists in a particular field.

Vorobyov V., Ivanenko I., Donchenko M., Popov V, Sidorchuk T. and others described the study of the mechanisms of interaction between students and teachers/mentors in the process of research activities in HEIs.

However, the peculiarities of presenting the results of scientific research in the form of research articles have not been adequately shown in the scientific literature.

Aim of research. The task of this study is to analyze the features of the organization of research work in pedagogical institutions of higher education. It is important to get acquainted with the method of writing scientific articles by student as a form of presentation of intermediate results of scientific research.

Resulats and discussion. The research activity of students is the search for an answer to a certain research problem with a previously unknown solution. It is characterized by the presence of the following stages: concidering the problem; study of the theory devoted to the problem of research; choosing the research methods and their practical studying; searching for the necessary theoretical material, its analysis and generalization; own conclusions [2].

Researching work of the students is one of the important tools in the quality training of future professionals who will be able to practically use in their professional activities both the latest technologies and the latest technical methods.

Research activities in HEIs can be implemented in two basic areas:

- teaching students the elements of research activities, the organization of this type of activity and a creative approach to it;
- involvement of students in scientific activities under the surveillance of teachers, presenting it as a final (qualifying work) or intermediate (research article, speech at a conference) product [1].

By presenting the results of scientific research in the form of scientific articles, the student has an opportunity to present both intermediate and final results of scientific research in which he/she was involved or conducted independently. The advantages of an academic article are that during its writing and publication, the student not only presents his/her own work, but also notes the prospects for the development of this study [4].

Characterizing the scientific article as a result of research activity, and as a kind of intellectual activity aimed at improving the level of knowledge of the

student, the development of his creative potential, we define its functions:

- researching – allows you to present the results of research;
- presentation – can be presented by a young scientist in the scientific community to which he/she seeks to join;
- evaluation – allows to evaluate a particular research in a narrow aspect of a particular issue;
- communicative – the main way of communication between scientists and researchers;
- developmental – promotes the development of creative and scientific potential of a student, with the prospect of further obtaining a scientific degree [3; 6].

When presenting the results of educational and research activities in professional publications, the student must be sure to get acquainted with the requirements and recommendations. According to the resolution of the Presidium of the Higher Attestation Commission of Ukraine № 705/1 of 15.01.2003, a scientific article in a professional publication must contain the following elements:

– general statement of the problem;

– analysis of the sources and publications of recent years, which describe the elements of the problem and identify those elements that are still unresolved;

– defining the goals of the article (setting tasks)

– presentation of the main material, research and substantiation of the obtained results;

– own conclusions and prospects for the development of the issues identified in the article [1; 7; 8].

Writing an academic article is quite a complex and long process. Presenting the results of your own research or intermediate results, you should follow the following next steps (Fig. 1):

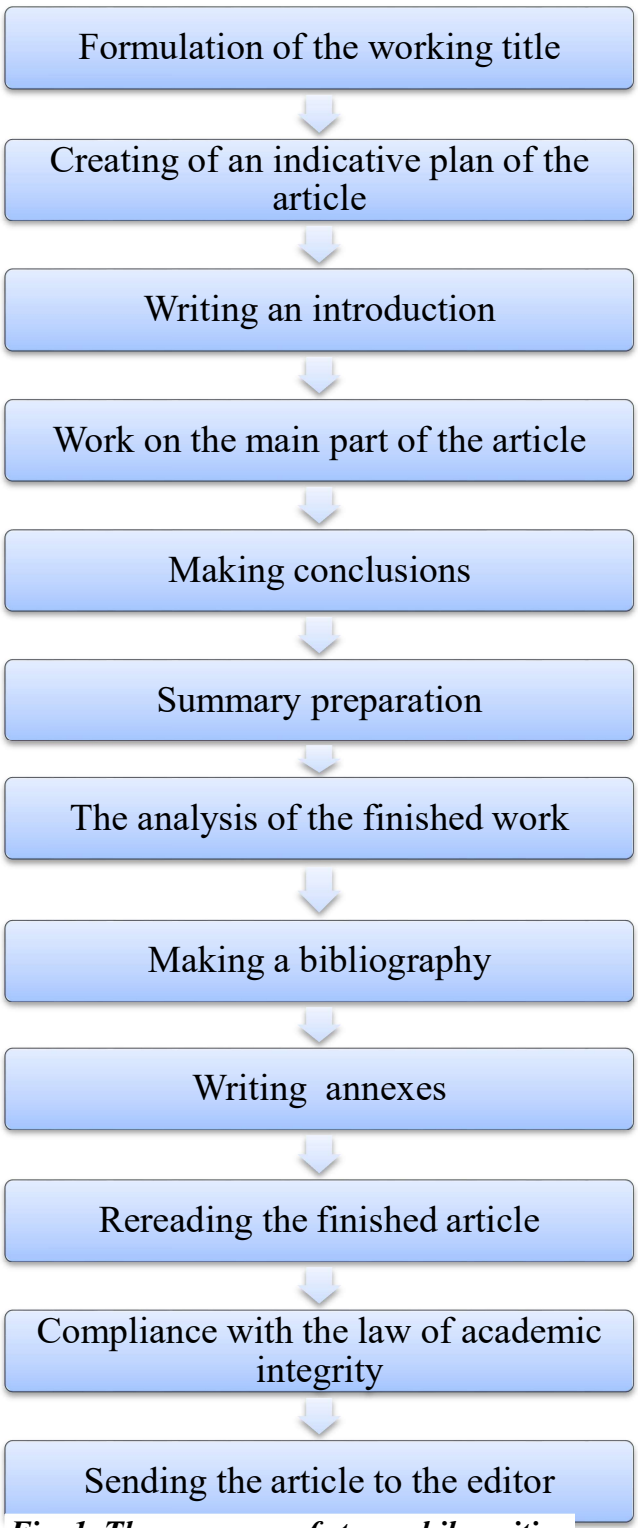

Fig. 1. The sequence of steps while writing a scientific article (author's interpretation)

1. Formulation of the working title. While determining the topic of the article, it is necessary to take into account the subject of research which to focus on,

and the amount of information that is planned to be submitted. The topic should be short but meaningful.

2. Drawing up a plan of the article. Based on the results of research, you need to determine what information you want to provide. If these are intermediate results of the study, it is necessary to take into account that its separate stage was completed and the results were processed properly. If this is a theoretical review of the literature on the problem of research, it is necessary to take into account the relevance of research presented by other scientists and their novelty.

3. Writing an introduction is a very important step, which allows you to define the results of the study, as a continuation or refutation of the provisions that were previously identified by other scholars. As a rule, the introduction determines the purpose, subject of research, issues, its relevance, analyzes the latest publications in the field to which the article is devoted.

4. Preparation of the main part of the article, its main content. This section should be at least two thirds of the total volume of the article. In the majority of cases, the submission of material should be carried out logically and consistently, so it is appropriate to divide it into separate subsections. For example, describe the method of the experiment, give the results, interpret them. When presenting numerical values, it is advisable to use tables or diagrams and charts, which will greatly simplify the perception of information.

5. Conclusions. This part of the article summarizes, draws conclusions, indicates what results have been achieved. It is important to remember that the elements of interpretation are not included here, conclusions are made on their basis. It is appropriate to note the achievement of the defined aim and the implementation of the tasks set before the start of scientific research, in accordance with the purpose defined by the article.

6. Preparation of the summary. To begin with, it is worth getting acquainted with the concept of annotation. This is a summary of the above article, which states both its purpose and the results that were described in the article. The abstract is submitted in two (Ukrainian and English) or even three (Ukrainian, English and Russian) languages. It is necessary to write an article very responsible, because the annotation together with the title of the article is placed on the Web-pages of the journals. The abstract should not only reflect the main content of the article, it should interest the reader, who will encourage him/her to read the article till the end.

7. Analysis of the finished work. The work should be analyzed according to the following indicators: meaningful, logical, grammatical, linguistic and stylistic. It is important to check that the working title of the article corresponds to its main content, if it is not, you need to correct it, simplify it and make it as clear as possible. Whether the material of the article corresponds to the defined purpose and objectives, check the availability of references to relevant literature sources.

8. It is necessary to check the correctness of the list of literature. The sources which are included in the list have to be arranged in accordance with the requirements set by the state standard, or, in some cases, in accordance with the requirements set by the periodicals themselves. In most cases, the list of literature is presented in alphabetical order, but some publications require a list of references in the order of its usage in the article.

9. Preparation of appendices. It is very important in the case when the article presents the results of a large, fundamental study. The appendices usually contain factual material, which simply cannot be reflected in the main content of the article due to its volume.

10. Re-reading the finished article, will identify its shortcomings and, if

necessary, it is an opportunity to carry out corrections.

11. Compliance with the law of academic integrity. Quite often, when working with theoretical material, authors use citations, and this is correct, provided that it is referenced. But in the case when the author's material from one of the sources, without proper processing, gets into the article, Art. 42 "On academic integrity "of the Law" On Education " is violated. In order to ensure academic integrity, periodicals use special programs to check plagiarism.

12. Sending the article to the editor. When the article is completely ready, you need to decide which periodical to send it to, get acquainted with the requirements that the magazine puts forward to the actors, and make the appropriate design.

Working with students of pedagogical specialty, it is worth noting the peculiarities of writing research articles, which are faced by both teachers and students.

Future specialists in the field of education have an opportunity to present the results of their research in two main aspects:

- pedagogical activity;
- professional orientation.

Regardless of which of the areas they choose and what they focus on, writing articles has its own specifics.

Pedagogical articles include the usage and description of two very important elements, one of which is a description of the methods used in research, or the latest technologies introduced in the formation of professional skills in future teachers. The second element is the definition and description of the industry in which the technology or technique is implemented.

The future teacher, joining the research activity, chooses the direction in which he or she seeks to develop, master and test methodological developments that will contribute to both his/her overall development and the growth of pedagogical skills.

Presentation of the results of research work in the form of scientific articles will allow the future specialist to accumulate materials that will be the basis for writing not only a qualification, but also work for the gaining of the appropriate scientific degree. So, starting from the first years of education, future specialists work not only on their own self-development, but also lay the foundation for further research.

The role of the teacher, in this aspect, is not limited to the leader or mentor who coordinates the research project, but significantly expands to the level of co-author. It is clear that some teachers express a desire to present their mentoring activities as co-authors, while others give a future specialist an opportunity to present the results of research independently.

Directing the work of future specialists, the teacher has to:

- To help the student to determine what specifics of scientific activity he/she chooses: professional or pedagogical. For example, if a student of historical faculty has decided to join the research work, he / she wants to emphasize the historical or pedagogical aspect;
- Identify innovative methods and forms of work that are relevant in modern pedagogy, which can be used to develop one of the psychological and pedagogical processes of the child. It is clear that there will be a correlation between the pedagogical components and the profile inclination. Still, having determined the emphasis of the article, the teacher must monitor compliance with this emphasis. For example, a student of historical faculty identified that he/she wanted to explore how interactive maps influenced the activation of voluntary attention in students of a certain age group. The teacher should help him/her to decide what he/she will pay more attention to, the mechanism of development and implementation of interactive historical map technology or the student wants to

explore how the indicators of voluntary attention of children of the same age group change with or without interactive historical map technology.

- Controlling and managing the work at the next stage, the teacher must make sure that the data collected by the student is factual. So, before starting work, the teacher should help the future teacher to determine what research methods he/she will use. Methods used to collect factual material cannot be developed by the student alone, as he/she does not yet have the appropriate level of professional training, instead, he can actively use methods developed by classics of pedagogy and used in pedagogical practice by many scholars. The actual material can include questionnaires filled out by children, or materials obtained during surveys in electronic format.

- The teacher/mentor should help the student to systematize the results and identify methods by which this data can be visualized to facilitate their description and perception. The processing of actual results should be carried out in accordance with certain methods, but the effectiveness of the introduction of new technologies is determined by the fact that any scientific study has three stages: ascertaining, forming, control.

- At the stage of generalization and systematization of research materials, which will be presented in the form of a scientific article, the teacher must ensure compliance with all stages of scientific research, and the correctness of their design and interpretation.

When a student writes a research article, the teacher, together with him/her, goes through all the stages of writing an article, starting from the definition of its working topic, ending with the design in accordance with the requirements of the periodical journal.

At each stage, the student's work should be coordinated with the teacher, and the teacher, in turn, should support and guide future specislist. Only having a quality cooperation in tandem, you can achieve a high quality indicator and get an article that will meet the requirements of the publication.

Conclusions and research perspectives. A scientific article is a presentation of the results of research activities. Both final and intermediate results of scientific research can be presented in a scientific article.

Writing a scientific article by students of higher pedagogical institutions has its own specifics, but nevertheless, compliance with the general rules, requirements and steps in the sequence of writing the article is mandatory. Due to the fact that the general basis of pedagogy or specific mechanisms of implementation of a particular educational discipline wants to present a future specialist in his scientific article, the subject and purpose of the article may be optional, but a certain content line should clear.

The supervisor or teacher/mentor is both a qualified specialist of the research project and the co-author of the article, but he/she decides whether to indicate co-authorship or not. The teacher, mainly, directs the work of a student in such a way that all components of the research article are sustained. The logic of the description of pedagogical interaction and pedagogical experiment are very importsnt.

The future specialist in the field of pedagogy can not only present the results of their own research, but also continue, deepen and develop them for accumulating material for gaining a scientific degree after obtaining a diploma of higher professional education.

Writing scientific articles is a progressive vector of scientific activity. Given its active implementation in the institutions of higher pedagogical education, it will be relevant to study the impact of this activity on the professional skills of students.

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