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CONTINUITY FOR RESEARCH SKILL DEVELOPMENT IN BACHELOR AND MASTER PROGRAMS

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Abstract

The system of higher professional education, designed to provide society with highly qualified personnel, seeks to comply with the principle of bachelor-master continuity for successful functioning. This cross-cutting task is geared toward both the continuity of academic content and consistent development of functional competences at each level of education. In this regard, research skills are viewed to indicate that future graduates are able and willing to perform scientific and professional activities. Based on system and activity approaches, as well as the theory of constructivism, the paper highlights search, analytical and presentation stages by which this type of skills develops, on the example of working with foreign-language scientific sources. The levels of research skills (low, medium and high) were developed separately for bachelor and master programs. These levels clearly show progression towards diversity, depth and range of complexity. Depicting successive development of research skills as a constructive sequential solution of research problems, the following principles can be delineated, namely: raising students' awareness of the activity performed; increasing students' autonomy as they master research skills; transfer of research expertise from university to employment. The need to follow the principle of recursivity is particularly emphasized when a student takes the stages of development of research skills. The above stages and levels of research skills, as well as ideas behind their development, give an opportunity to present continuous development of research skills in bachelor and master programs.

Keywords: Continuous development, professional activity, research activity, research skills, training system

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1. Introduction

Today, when vocational education system is moving towards digital technological solutions to learning problems, there is an urgent need to improve all aspects of educational and research activities. To a certain extent, in order to solve the tasks set for the system of vocational education to train highly qualified on-fire personnel, it is necessary to involve students more widely in research activities. Therefore, the educational process should be tailored to considerably address students' creative initiative and research skills, since it is research activity that shapes their need for life-long learning.

Research activities and research skill development, being one of its dimensions, are a matter of scientific debates in the modern educational environment. Most scientists (Drutsko, 2020; Eger, 2020; Fang et al., 2020) look at it as part of a well-tailored educational process based on its agents interacting, because of which students acquire new knowledge, master functional and research skills, develop their personal and professional qualities for self-realization in future professional activities.

Several publications (Bodyan et al., 2014; Kalugina et al., 2011; Lysak & Martynyuk, 2017) highlight certain foundations of research activities being developed in the system of higher education. In particular, they explore methods and techniques used by students involved in self-study research activities (Manov & Milenkova, 2018; Sokolova & Gilmutdinova, 2019; Sun & Chen, 2016).

This problem is addressed by modern foreign scientists (Ahem & López-Medina, 2021; Cancino, 2020; Dooly et al., 2021; Knorr, 2019). They present the software and methodological support for teaching a foreign language in the bachelor-master system, including courses mainly aimed at presentation techniques, teaching and learning methods, features of academic writing, oral argumentation and debates.

In the competitive labor market, there is an obvious relationship between the level of research skills, abilities and competencies and professional self-realization at all levels of higher education, in particular, in bachelor-master programs.

2. Problem Statement

Nowadays, an employee with not only professional competencies but also research skills contributing to their successful career is demanded on labour market. Thus, student research work is acquiring special significance as far as professional training is concerned.

Foreign Language has a great potential to develop student research skills. In this regard, it is proposed to include activities for fostering research skills in bachelor and master foreign language programs and to define the principles of continuous development of these skills in bachelor and master programs (Belyakova, 2015).

A scientific literature review on the topic resulted in insufficiently elaborated methodology for developing research skills in foreign language bachelor and master curricular; the ideas behind successive development of this type of skills are not sufficiently highlighted. All these challenges of the educational process, which is related to diagnosing research skills between two levels in the framework, and, as a

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result, the lack of systematic approach to ensure development, and constitutes the problem stated in the paper.

With regard to this problem, a scientifically sound solution is to design stages and levels of research skills in the study of a foreign language, which could serve as the groundwork of the principles for this type of skills to be shaped throughout the entire bachelor-master cycle.

3. Research Questions

Research skills are considered in succession at bachelor and master levels.

Based on the scientific literature reviewed on the topic, the paper provides a definition of "research skills". Research skills refer to a set of personal, intellectual and activity characteristics that promote transformations of theoretical knowledge into practical skills, and lead to new knowledge expressed in research activity.

Research objectives are defined:

i. to present a system of stage-by-stage development of research skills for bachelor and master levels;
ii. to determine the levels of research skills in the bachelor and master programs;
iii. to identify the main principles behind continuous development of student research skills in the bachelor-master framework.

4. Purpose of the Study

The paper aims to develop a methodology for shaping student research skills, including the means of a foreign language, for a successful transition from bachelor to master studies.

5. Research Methods

A methodological toolkit comprises a set of general scientific methods and analytical procedures: comparative analysis, classification and systematization of data, analysis of scientific Russian and foreign literature.

The methodology for studying the development of research skills among students was based on the ideas of systemic, activity, competence-based approaches, as well as the principles of consistency, scientific character, consciousness and activity in learning.

A systematic approach presents the way research skills are developed as a complex, time-consuming, well-structured process. An activity approach, in which the development of one of the types of activity – research, creative, etc. is seen as an important component of the educational process, recreates the process of gradual mastering of the fundamental concepts of research activities by students.

Based on the idea of constructivism that the activity by the cognizing subject, which is a constructive process of cognition, is not complete until it has meaning and significance, it can be argued that the progressive movement of the subject in his research activity is possible by forming certain higher-level research skills.

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6. Findings

Developing research skills could take long when skills become deeper and more versatile at each level of training. In this regard, the authors present the stages of development on the example of working with foreign-language scientific sources.

At the preparatory stage, students get ready to do research and get familiar with the vision of research. Here, they get information about the main forms of research directly related to studying and analysing scientific foreign-language sources, as well as basic requirements, the structure and stages of research.

Stage I – search

It implies the ability to find scientific foreign-language information from various sources (university libraries, virtual and digital libraries, other online sources), determine the strengths and weaknesses of these sources, format references of foreign books, articles and websites that students used for research. Given a vast amount of data and variety of sources that can be found on the Internet, students should develop the ability to assess whether foreign-language scientific materials they find are credible and make judgments about the status and relevance of a large number of texts.

Stage 2 – analysis

It implies the ability to conduct a quantitative and qualitative analysis of foreign-language content, clarify and provide a rationale for research questions related to a large amount of scientific information, determine units of analysis, interpret scientific categories in foreign texts, analyze the linguistic, communicative phenomena of scientific texts, as well as their stylistic features.

Stage 3 – presentation

It implies the ability to put the results of research into proper form (writing an annotation, summary, report in a foreign language, working with foreign-language literature for final paper) and present them a certain way. The range of activities also includes getting familiar with the requirements of foreign journals, dealing with foreign publishing houses, etc.

The levels of research skills are shown in the Table 1 and Table 2 below.

Table 1. Levels of research bachelor skills

	Bachelor		
	Low	Medium	High
Stage 1 – search	• does not use relevant information retrieval methods or uses those that are inconsistent with the scientific context; • choses a minimum of foreign-language sources of information, only one of which is relevant to the topic; • does not know how to work with Internet services;	• uses one or two relevant methods to find reliable scientific information; • chooses several scientific foreign-language sources, of which only some are relevant to the topic; • occasionally uses Internet services; • demonstrates awareness of not all validity and reliability indicators of scientific sources	• uses a variety of relevant ways to find quality information for a scientific context; • defines and chooses several highly relevant scientific foreign-language sources; • good at Internet services; • demonstrates awareness of validity and reliability of a source, knows how to combine sources, uses a filter, a scoring system, etc.

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	• unaware of validity and reliability of scientific sources		
Stage 2 – analysis	• does not critically evaluate scientific information; • does not pick out key ideas in scientific information	• evaluates information, data and query procedure using simple criteria specified; • sees key ideas derived from scientific information	• critically evaluates information, data and search flow using criteria related to the purpose of request; • thoroughly analyzes the key ideas related to the research topic
Stage 3 – presentation	• has problems with spelling and grammar of a form of research; • does not follow the rule of consistency in the style, formatting and tone of research; • is able to prepare only basic bibliographic information (title and author); • cannot draw up a final report in the form of a clear structure characteristic of any form of research.	• partially uses spelling and grammar rules with one of the forms of research; • minor inconsistencies in style, formatting and tone of research; • partially follow bibliographic completeness, accuracy and requirements; • complies with the requirement of consistency of all sections of the final report.	• makes full use of spelling and grammar norms and rules in the preparation of research results; • stick to an appropriate and consistent style and tone of research; • presents bibliographic information fully, accurately and in accordance with the requirements; • presents the final report fully prepared in the required form.

Table 2. Levels of research skills developed in master's students

	Master		
	Low	Medium	High
Stage 1 – search	• is able to collect and put down necessary information or data using specified methodology from a specified source in which the information/data is clearly visible; • does not use specific terminology for the chosen field of research; • unaware of validity and reliability of scientific sources	• partially able to collect and write the necessary information/data from self-selected sources using one of several prescribed methodologies; • occasionally uses special terms for the chosen field of research; • demonstrates awareness of not all validity and reliability indicators of scientific sources	• is able to collect and write necessary information/data from self-selected sources using one of several prescribed methodologies; • uses special scientific terminology in the chosen field of research; • demonstrates awareness of validity and reliability of a source, knows how to combine sources, uses a filter, a scoring system, etc.
Stage 2 – analysis	• analyzes and synthesizes information/data to reproduce their knowledge in specified formats; • does not critically and qualitatively evaluate foreign-language	• analyzes and synthesizes information/data to rearrange their knowledge in standard formats; • evaluates information, data and query process	• analyzes and synthesizes information/data to generate new knowledge • critically evaluates information, data and search flow, using criteria related to the purpose of request;

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	information; • fails to see key ideas derived from scientific information	using simple criteria specified; • sees key ideas derived from scientific information	• thoroughly analyzes the key ideas related to the topic of research
Stage 3 –presentation	• uses mostly non-specialist language and related style to demonstrate understanding of scientific information; • does not apply acquired knowledge in a similar scientific setting; • has difficulties with spelling and grammar of a form of research; • unable or partially able to format basic references; • cannot structure a final report clearly and characteristically of a form of research.	• partially uses professional language and related style to demonstrate understanding of scientific information; • applies acquired knowledge in a similar scientific setting; • partially uses spelling and grammar rules for formatting a form of research; • is able to present basic bibliographic information, partially following bibliographic requirements, though; • partially able to draw up all sections of the final report.	• uses professional language and style specific to a particular professional area to demonstrate a scholarly understanding of information; • applies acquired knowledge in a new scientific setting; • has the best idea of spelling and grammar norms and rules in the preparation of research results; • is able to present complete and accurate bibliographic information, in compliance with the requirements; • is able to present a final report that includes all sections.

The above levels of research skills show the process of their continuous development in the bachelor-master framework and highlight the principles behind. One of them is the principle of raising students' awareness of the activity being performed. It implies gaining experience in solving research tasks and developing skills by involving a student in a dynamic personally significant activity. This turns them into researchers who have not only a set of knowledge, but also a mature methodological reflection. All this requires a high degree of awareness of research activities performed.

The next principle is to increase students' autonomy as they master research skills. It ranges from student involvement in pre-structured research aimed at a predetermined outcome implying a high level of supervision and the use of specified methods and tools, to 'open' research involving a high level of autonomy and self-determination as to what and how is researched, what appropriate tools are applied independently.

Within the principle of research expertise transferred from university to employment, it is necessary to emphasize that solutions of new, more sophisticated research tasks and self-management of research activities by graduates require a consistent transfer of university-learned research skills to strategically oriented professional settings. This calls for students to use a wide range of methods and tools to solve sophisticated research problems that are part of professional competences. The level of specialized competence and knowledge, complexity of discourse, scope and depth of methodological foundations, and degree of problem uncertainty are gradually increasing in the bachelor-master framework.

Research skill development is also based on the principle of recursivity. The designated successive levels of research skills do not mean that students must take them in a linear, predetermined way. The student will not necessarily be doing at the same level of research continuum at any given time. Progression is recursive for each student and depends on many factors, in particular, on the ability to find new solutions to problems, with due account for the context and changing requirements.

7. Conclusion

Nowadays, research skills are a component of graduates' professional competency and the basis for their competitiveness in the labor market, therefore, research skill development is one of the conditions for training personnel at all levels of education. Research work is one of the activities involving bachelors and masters. The level of research skills formed in the process of studying under the bachelor's program becomes the basis for improving these skills in the master's program. The skills are specific in that they need to be continuously developed at each stage. Thus, the presented stages and levels of research skill testify to continuous, successive and sequential development.

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