



METHODOLOGY FOR DEVELOPING STUDENTS' RESEARCH SKILLS THROUGH THE EXAMPLE OF THE "RESEARCH METHODOLOGY" COURSE

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Abstract

Orienting students toward scientific research is an integral part of the higher education learning process. In today's world — marked by an ever-increasing volume of knowledge sources and the widespread use of artificial intelligence — the importance of conducting scientific research remains highly relevant for generating innovative ideas and unique products. This article explores the opportunities for developing students' research skills within the framework of a learner-centered approach, using the "Research Methodology" course as a case study in higher education.

Keywords: Learner-centered education, curriculum, research skills, research methodology, scientific activity, higher education.

Introduction

Relevance of the Topic. One of the primary objectives of higher education is to cultivate research competencies that serve as a foundation for the professional and academic development of future specialists. In global pedagogical practice, the mechanisms for developing research skills during the learning process are



regarded as one of the key factors contributing to improved educational quality¹. A number of scholars emphasize that these competencies are crucial for teachers to achieve academic advancement and professional growth².

Although it is not a novel phenomenon for students to engage in scientific research alongside their academic studies, it cannot be claimed that all students possess such competencies. Based on this consideration, the present study focuses on analyzing the development of research skills among higher education graduates through the lens of scientific activity.

The purpose of this article is to substantiate a methodology for developing students' research competencies within their field of specialization, based on a learner-centered teaching approach, using the course Research Methodology as a case study.

The scientific novelty of the study lies in the analysis of how research skills can be developed among master's degree students through project-based learning in the Research Methodology course.

Main Part

Literature Review

An analysis of previous research on this topic reveals that graduates who were actively engaged in scientific research during their studies tend to demonstrate higher academic and professional outcomes compared to their peers who lacked such experience³. Several scholars also argue that students who participate in research projects during their time at university are more likely to collaborate

¹ Yarullin, I. F., Bushmeleva, N. A., & Tsykrun, I. I. (2015). The Research Competence Development of Students Trained In Mathematical Direction. International Electronic Journal of Mathematical Education, 10(3), 137-146. <https://doi.org/10.29333/iejme/296>

² Davis H, Evans E and Hiskey M 2006 Journal of Higher Education Policy and Management 28 231–244. Shaw K, Holbrook A and Bourke S 2011 Studies in Higher Education 10 1–17.

³ Yarullin, I. F., Bushmeleva, N. A., & Tsykrun, I. I. (2015). The Research Competence Development of Students Trained In Mathematical Direction. International Electronic Journal of Mathematical Education, 10(3), 137-146. <https://doi.org/10.29333/iejme/296>; Davis H, Evans E and Hiskey M 2006 Journal of Higher Education Policy and Management 28 231–244.; Shaw K, Holbrook A and Bourke S 2011 Studies in Higher Education 10 1–17.; Gregerman S R, Lerner J S, Hippel W, Jonides J and Nagda B A 1998 Review of Higher Education 22 55–72.



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effectively and productively with faculty mentors, and, in many cases, go on to pursue careers in academia⁴. In the field of natural sciences, the scholar Lopatto emphasizes that students who are actively involved in laboratory work, conferences, and academic seminars during their university years often display signs of professional success as early as the initial stages of their education⁵. This strongly supports the importance and validity of engaging students in research activities from the very beginning of their academic journey⁶.

In reviewing studies conducted in this field, it is worth highlighting the research undertaken by the Department of Retail and Marketing at Manchester Metropolitan University⁷. The institution's empirical investigations focused on the benefits of student-centered learning approaches in engaging students in scientific research, identifying key elements for developing a culture of teaching, and managing research projects effectively⁸. The findings emphasized that maintaining a balanced integration of educational and research activities within higher education institutions can lead to significantly improved outcomes. It is important to note that, within the context of higher education in Uzbekistan, much of the focus in undergraduate and graduate programs remains on instruction alone, often at the expense of developing practical research skills. As a result, many graduates lack sufficient professional competencies to meet the expectations of employers. Therefore, it is essential to ensure that students are given opportunities not only to study, but also to fully acquire research skills throughout the learning process.

This perspective aligns with the objective of the University 2.0 model introduced as early as the 1970s, which emphasized integrating teaching and research as a unified educational goal. Unfortunately, this model has yet to be fully realized

⁴ Elgren T., Hensel N. Undergraduate research experiences: Synergiyes betweyen scholarship and teaching //Peer Review. – 2006. – T. 8. – №. 1. – S. 4-8.

⁵ Lopatto D. Survey of Undergraduate Research Experiences (SURE): first findings. Cell Biol Educ. 2004

⁶ Healey R L and Daviyes C 2019 Higher Edusation Research and Development 38 1386–1400

⁷ https://www.unipage.net/ru/10290/the_manshester_metropolitan_university

⁸ Sshmidt R A, Jones P, Bennison D and Daviyes B J 1994 Journal of Further and Higher Edusation 18. 75–84.



across universities in our country. Notably, aspects of this issue have also been addressed in several of our previous research studies⁹.

A review of relevant sources indicates that a sincere and empathetic classroom environment has a more significant impact on the quality of education than many external factors. In particular, the realization of students' scientific and professional potential occurs within a harmonious setting that encourages openness, transparency, and mutual respect¹⁰. Such an environment is characterized by genuine appreciation of the learning process, emotional empathy, and respect for the feelings of others — what may be referred to as empathetic acceptance.

Developing Research Competencies within the Framework of the Research Methodology Course.

In exploring best practices related to this topic, our attention turned to the question: What teaching approach or methodology can most effectively enhance the development of students' research skills within the educational process? Drawing on our pedagogical experience, we developed a methodology aimed at fostering research competencies in the course Research Methodology, which is a core subject in master's degree programs.

The content of this methodology is based on individualized work with each graduate student throughout the semester, focusing on mastering the module content and improving the effectiveness of their research activities. The methodology was piloted at the following higher education institutions: National University of Uzbekistan, Urgench State University, Andijan State University, Tashkent State University of Law.

For the purposes of the study, students were divided into control and experimental groups. The methodology was specifically designed to be implemented in the practical sessions of the course module.

⁹ Allayarova, Solikha Narzuloevna. *Urgent Issues in Guiding Students toward Scientific Research Activities*. // *Zamonaviy Ta'lim – Sovremennoe Obrazovanie*, Scientific-Practical Popular Journal (Uzbekistan), (2021), (5 (102)), pp. 17–25.

¹⁰ Motsshnig-Pitrik R., Santos A. M. The person centered approach to teaching and learning as exemplified in a course in organizational development // *Zeitschrift für Hochschuldidaktik (ZHD)*. – 2006. – T. 4. – №.1.



The **primary goal** of the methodology is to develop students' research competencies while taking into account their individual knowledge and skill levels.

The **content and sequence** of the methodology are structured to ensure educational effectiveness. The acquisition of course content is primarily based on independent learning. The instructor's role includes guiding students toward solving research-related tasks, continuously assessing and improving their research skills, managing the learning process, and evaluating learning outcomes. Furthermore, the course Research Methodology can be delivered in a **blended learning format**, combining remote lectures with face-to-face practical sessions. This approach has been successfully implemented at Tashkent State University of Law.

Unlike traditional approaches, this methodology ensures that specific components of the master's thesis are developed during each practical session. By the end of the semester, students are expected to meet the relevant requirements outlined in the Regulations on Master's Programs of the Republic of Uzbekistan.

Considering that independent learning skills are most effectively demonstrated during practical activities, the following section outlines the specific tasks that students are required to complete in each practical session¹¹.

Table 1 Practical Session Tasks

№	Topic of Practical Session	Task Description	Form of Completion	Deadline / Week	Hours
1	Fundamentals of Research Methodology	Understanding the module content, goals, and objectives	Oral	Week 2	2
2	Current Trends in Scientific Research	Identifying key priority areas in the field (national, regional, international levels)	Written	Week 3	2
3	Problem and Scientific Problem. Formulation of Research Topic	Identifying professional problems, classifying them by significance; developing	Written	Week 4	2

¹¹ **Note:** Each task completed by the student must be presented in accordance with the technical formatting requirements for thesis writing as specified in the *Regulations on Master's Degree Programs of the Republic of Uzbekistan*.



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		a scientific problem from a practical issue; defining a research topic based on the scientific problem			
4	Research Design	Defining the research purpose, objectives, object, and subject	Written	Week 5	2
5	Types of Research	Determining the type of research based on the topic; describing anticipated results; developing a working hypothesis	Written	Week 6	2
6	Research Methods	Identifying and describing empirical and theoretical methods used at each stage of the research	Written	Week 7	2
7	Literature Review: Reviewing the Level of Study of the Topic	Identifying key concepts; using key terms to search for at least 10 academic articles, 10 dissertation abstracts, and 10 monographs; completing the literature review form	Written	Weeks 8–9	2
8	Working with Databases: Scopus, Google Scholar, Web of Science	Downloading and describing sources from databases relevant to the field; creating and enriching academic profiles on platforms such as Scopus, Google Scholar, Web of Science	Written	Week 10	2
9	General Requirements for a Master's Thesis	Structuring the thesis: introduction, expanded outline with chapters and sections, hypothetical conclusion, references and sources	Written	Week 11	2
10	Research Article and Conference Thesis as Independent Work	Writing and publishing a scientific article	Written, Printed	Throughout the semester and Week 12	2
11	Scientific Research and Innovation	Preparing start-up (applied) projects based on the research; mechanisms of intellectual property protection (patents, certificates); drafting the research annotation	Written, Practical	Week 13	2
Total Hours					22



**Table 2 The procedure for conducting the Midterm Assessment (MA) in the
Research Methodology Module**

MA	Score (Total: 30)	MA Task	Deadline	Form of Completion
MA 1	20	Write a short research paper (based on the main points of the introduction section of the dissertation)	Weeks 8–9	Written. Independent.
MA 2	10	Submit a thesis (or article) on the chosen topic	Before the final week of the semester	Printed article. Independent.

Note: A total of 50 points is allocated for midterm assessment (MA). Of these, 30 points are awarded based on the above tasks, and the remaining 20 points are based on the student's performance in completing assignments given in practical sessions.

Each written assignment completed by the student is individually reviewed by the instructor. Naturally, this approach increases the instructor's workload within the current system. However, within the credit-based education model, the annual teaching load for professors holding academic degrees and titles is relatively modest. Moreover, since assignment assessment is formally included in the teaching load, instructors are given sufficient time and opportunity to engage in individualized work with students.

A distinctive feature of this methodology is that students, by completing weekly practical assignments, are able to prepare the components required for the first midterm assessment. For example, identifying the most important priority directions in their field, and analyzing global, regional, and local issues, helps justify the relevance of the proposed dissertation topic. Similarly, the fourth week's task — formulating the research purpose, objectives, object, and subject — directly contributes to the core elements of the dissertation's introduction. Overall, through the systematic completion of weekly assignments, the student is able to draft the fundamental parts of the introduction by the end of the semester. As a result, the practical sessions, the first midterm Assessment, and essential parts of the dissertation are completed simultaneously and in a structured manner.



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The second midterm assessment is also based on the completion of practical assignments aligned with the module topics and their respective deadlines. We can reasonably assert that by the time students complete the tasks assigned prior to the practical session on General Requirements for a Master's Thesis (Topic 9), they will have sufficient material to prepare a doctrinal (descriptive) article or thesis on their chosen research topic. For instance, the task in Topic 7 — which involves reviewing at least 10 academic articles, 10 dissertation abstracts, and 10 monographs (a total of 30 scholarly sources) — provides enough content for writing a descriptive research article. Timely completion of each task is critical to the effectiveness of the learning process, as the assignments are interdependent: completing the second or third task without first completing the preceding one is nearly impossible. This interconnected structure encourages students to conduct continuous research on their selected topic throughout the semester.

In short, the completion of weekly practical assignments has a direct impact on the fulfillment of midterm assessment. The effectiveness of these tasks is also closely tied to the organization of the academic process within the higher education institution — particularly the timely approval of master's thesis topics, and the consistent involvement of academic advisors assigned by the department. Most importantly, students gain first-hand experience in conducting independent research. This, in turn, contributes to the development of skills necessary for the next stage of academic education — PhD (basic doctoral studies) — including the ability to conduct scientific research, write academic articles, and independently compose a doctoral dissertation.

The **final assessment** for the module is conducted in written form. During the allocated time, students are required to provide: a written solution to a research-related **problem-based case (casus)** related to scientific methodology and activity (1 task, 20 points), and written responses to **two logical questions** based on the theoretical content of the module (15 points each, total 30 points). A total of **50 points** is allocated for the final assessment.



Conclusion

There are numerous factors that influence the development of students' research competencies. In this study, we piloted a project-based teaching approach to the course Research Methodology, which is taught across all master's degree programs. This approach was tested for its effectiveness in fostering research-oriented skills among graduate students.

In exploring effective methods and approaches for engaging students in scientific research activities, it has been noted that the fulfillment of students' expectations and needs in the learning process is strongly influenced by the content of the curriculum, the availability of educational resources, and students' satisfaction with the pedagogical support provided by instructors¹². To enhance the effectiveness of the methodology used in the Research Methodology module, it is recommended to create a feedback environment within the experimental group, involving regular use of Google Forms for surveys, structured interviews, and the collection of individual reflections from students.

As previously discussed, our primary focus in guiding students toward research activity has been the consistent completion of practical tasks. As a result, we observed notable development of research competencies among students, as evidenced by their performance across the task areas listed in Table 1.

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¹² 2015 Standards and guidelines for quality assurance in the european higher edusation area (esg)URL http://www.britishsounsil.org.ua/sites/default/files/standards-and-guidelines_for_qa_in_the_ehea_2015.pdf



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