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Development of the Doctoral Studies System and Prospects for Enhancing Scientific Potential in the Republic of Uzbekistan

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Abstract: This article examines the reform of doctoral education in Uzbekistan in the context of the continuing transformation of higher education and in the context of the development of the national scientific base. The most recent steps related to the Concept for the Development of Science until 2030 and to the newly adopted Law on Education propose more restrictions, clearer monitoring and more homogenous evaluation of doctoral programmes. Yet one problem remains. Partly for how structural and policy conversation focused, that motivation, challenges, and researcher development (now a term for PhD candidates itself) falls aside. Using data collection, econometric techniques and logical analysis, enrollment, gender participation and admissions practices in leading institutions are reviewed. The findings show striking progress. The number of doctoral student researchers nearly quadrupled since 2014 and women now account for more than half of such researchers, up from around a third. Such transitions indicate growth and burgeoning demand. According to the study, this is a movement that implicates Uzbekistan toward a more liberalized and less hostile academic atmosphere. However, on the other hand, a PhD education that is better-targeted will give the country independent thinkers who engage in the process of national innovation and long term growth.

Keywords: Doctoral Studies, Higher Education Reform, Scientific Potential, Research Training, Gender Participation, Admission Process

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1. Introduction

There is fresh interest in modernising doctoral studies in Uzbekistan as part of reforms of the education system. While only a few decades into its development at this point, both government and national scientists view this stage of training as among the best indicators of the future scientific capacity of the nation [1]. Digging deeper on this foundation is not run-of-the-mill engineering work. That is a mission that necessarily will shape what research this country will conduct for decades.

The changes are being driven by a pair of high-level policy documents. The sixth chapter of the Concept for the Development of Science until 2030 features the Foundation and outlines long term strategic directions for supporting a competitive science and innovative science environment. The new Law on Education offers a more exact and up-to-date legal basis for scientific training. Together, they pave the way for a more open, transparent and efficient system of doctorates.

Reducing the number of PhD graduates per researcher is part of the grander scheme of things — of the reforms that aim at making PhD education more efficient/relevant and of higher standard. And programs that make people think for themselves, innovate their

own trends, and enjoy the process of developing themselves as individuals. The data in the attached analysis indicates that today in Uzbekistan doctoral studies rely at the junction of education, science and production, which is a meaningful element of the national innovation system [3]. For the content of programmes, for scientific control, for evaluation tools that need to centre on original contributions more than rituals.

It is equally necessary to engage the senior scholars with the young researchers within powerful scientific schools. Such communities will serve to foster the generation of motivated and well trained specialists capable of meaningful contribution to the scientific and economic future of Uzbekistan, as well as ongoing alignment of doctoral training with the international standards [4].

2. Methodology

Using a mixed-method, constructionist approach, this study investigates influences on the doctorate and the development of the doctoral studies system in post-colonial contemporary Uzbekistan. The research utilizing such official documents as the Concept for the Development of Science for years to 2030, assumptions of the latest Law on Education and statistical data, made available in national databases offers relatively good foundations for the analysis of policy trajectories and long-term dynamics [5]. We viewed the stated purposes and inner workings of recent reforms through a microscope of replicable rationality and empirical deduction, grouping data points and using comparison – the foundation of the scientific method – to spot trends in enrollment, female participation rates by school, and institutional practices. It uses induction and deduction to couple national levels of strategy with implications for doctoral supervision, admission practices, and research evaluation at both local and global compatible scales. Moreover, some econometric instruments were employed on the doctoral enrollment flow data of 2014-2024 making it possible to demonstrate, for example, the fact of rapid increase in women-doctoral education and growth of scientific staff as a whole [6]. Together, these methods provide a comprehensive view of how legal, organizational, and educational reforms correlate with the on-the-ground experiences of doctoral candidates and institutions. The essay outlines how the policy analysis along with statistical trends followed by an interpretive evaluation enables us to recognize the aspects which preserves the advantages of the current system as well as the limitations that must be improved upon to strengthen Uzbekistan scientific ecosystem [7].

3. Results and Discussion

The primary goal of scientific-pedagogical schools is to develop doctoral candidates' competencies for independent scientific research, expand opportunities for the practical application of their scientific results, and ensure the competitiveness of young scientists in the international scientific community.

Currently, the doctoral stage in Uzbekistan is recognized as one of the main mechanisms for shaping scientific potential, integrating education, science, and production, and training personnel for the national innovation system [8]. Postgraduate education plays a decisive role in preparing highly qualified specialists capable of working in advanced fields of science and technology.

In the development of the doctoral system, the human factor personal growth and motivation for self-realization becomes increasingly important. The scientific activity of a doctoral student is not just an educational process, but the highest type of professional self-awareness and personal development in terms of independent learning and creative scientific activity.

The contemporary doctoral system is now perceived in Uzbekistan as the final phase of self-education, practice in seeking out scientific literature, analyzing information/data, penning research papers, attending conferences, and obtaining research techniques and

equipment. This strategy is reforming doctoral education into an academic process: a location, form, and atmosphere for cultivating human resources; a genuine place for growth and self-hatching; and an entity that corresponds to the needs of an innovative economy [9]. For example, the move is away from the *de rigueur* of academic qualifications toward intrinsic drive, creativity, and independent thought processes for scientific exploration.

The point is that today, a doctoral program considered not only as a degree, but also as a development of critical analyze, independent research, and hands-on experimentation skills [10]. In the future, ensuring both the training of research personnel and the effectiveness of the two-level doctoral model (the PhD and DSc), meeting international accreditation standards, and developing scientific-pedagogical schools will be of vital importance. In the past 10 years, reforms in the field of education and science have shown visible results for the growth in quantity and quality of trained scientists in Uzbekistan. One of the more encouraging trends is the rising involvement of women in scientific activity suggesting the pleasant impact of gender equality policies [11].

Table 1. Dynamics of Doctoral Enrollment in Leading Institutions

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
women	356,0	474,0	474,0	584,0	629,0	824,0	1040,0	1355,0	2372,0	3443,0	4129,0
men	680,0	915,0	896,0	1048,0	1135,0	1423,0	1634,0	2525,0	3375,0	3880,0	3863,0

Uzbekistan had 1,036 scientists in 2014 and 7,992 in 2024, which shows a significant growth of researchers in the country. Women scientists consisted of 34.4 percent in 2014, but by 2024 they represented 51.7 percent, bringing balance to the discipline [12]. The number of male researchers also grew from 680 to 3,863, although it decreased the next following year. The slight drop of 0.4 percent in 2024 suggests that the rise in women's participation has been even stronger, showing their growing activity and presence in science. The period 2020–2023 showed the highest growth, with the number of women increasing 3.3 times (from 1,040 to 3,443), reflecting an active policy in training scientific personnel and expansion of the doctoral system [13].

Requirements for Admission to Postgraduate Scientific Degrees

For preparatory research, foundational doctoral (PhD), and independent research (PhD) programs:

1. Brief biographical information.
2. Diploma of Master's degree or clinical residency (for medical sciences), or equivalent higher education diploma.
3. Copies of published scientific works (at least 1 article and 2 theses).
4. Reference from workplace (for independent researchers).
5. National or international foreign language certificate (optional).

For doctoral (DSc) and independent research (DSc) programs:

1. Brief biographical information.
2. Higher education, candidate of sciences (PhD), or equivalent international degree certificate.
3. Scientific lecture on the research topic and detailed draft plan of doctoral dissertation for DSc (optional for independent researchers).
4. Copies of published scientific works (at least 3 articles and 2 theses).
5. Reference from workplace (for independent researchers).
6. National or international foreign language certificate (optional).

Clear documentation requirements simplify the admission process and make the path to obtaining an academic degree systematic and transparent.

Admission of applicants to postgraduate education institutions, namely, to foundational doctoral (PhD) programs and independent research programs, is conducted by admission committees established by universities or research institutions in accordance with the procedures defined by legislation [14]. Selection of applicants for foundational doctoral studies is based on the results of entrance examinations, while admission to independent research programs is carried out based on interview results.

Foundational doctoral candidates receive a stipend corresponding to one assistant staff position (currently, for the 2025–2026 academic year, this amounts to 6,800,000 UZS), which distinguishes them from independent researchers [15].

4. Conclusion

The growth of a doctoral framework in Uzbekistan serves as an inseparable part of increasing the performance of higher education and scientific potential. They are not just a degree in arts but also a means of nurturing independent scientific thought, practice-oriented ideas and individual creative potential. Over the last ten years, we have increased the number of scientists, women in science and improved gender equity. There is a lot of independent study then scientific research activity that is often original inherent to PhD programs. Improved developments on scientific potential of Uzbekistan in future will largely depend on the two-stage model (of PhD and DSc), international evaluation systems, and nurture of scientific-pedagogical schools.

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