The Gufo · 2026
https://thegufo.com/listing/the-need-to-introduce-international-experience-of-doctoral-education-in-armenia/
DOI: 10.70416/3331226

Benchmarking Armenian Doctoral Education Against Internationally Ranked University Practices in the Post-Soviet Context

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Received: 2026-04-06 · Published: 2026-08-12

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Abstract

The big transformation of doctoral education has become a central topic in global higher education debates, driven by the increasing internationalization of research, diversification of academic careers, and the growing demand for transferable skills among doctoral graduates. While many European and North American universities have transitioned from traditional individual apprenticeship models toward structured doctoral programs organized through doctoral or graduate schools, many post-Soviet countries, including Armenia, continue to maintain institutional arrangements strongly influenced by the Soviet academic tradition.This study examines the extent to which contemporary Armenian doctoral education aligns with internationally recognized models of doctoral training through a comparative benchmarking approach. The research is based on a qualitative document analysis of doctoral education policies, regulations, and institutional practices of universities represented in the QS World University Rankings by Subject: Education. The study analyzes a sample of leading universities across different national systems, selected to capture diversity in doctoral education models. Data were collected and systematically coded according to five analytical dimensions: organizational structures, admission procedures, educational components and workload, supervisory and progress-monitoring mechanisms, and dissertation completion and defense procedures.The findings demonstrate substantial differences between Armenian doctoral education and internationally prevalent practices. The main discrepancies relate to the predominance of individual supervision, examination-based admission procedures, limited development of transferable competencies, insufficient interdisciplinary flexibility, and weak integration with non-academic sectors. The analysis also identifies structural barriers, including limited financial support and regulatory constraints, which hinder the adoption of international practices. At the same time, recent reforms initiated through international cooperation projects, including VERITAS and ARMDOCT, demonstrate emerging institutional capacities for change.The study concludes that the modernization of doctoral education in Armenia requires a systematic transition toward structured doctoral models, stronger institutional responsibility for doctoral training, more flexible supervisory arrangements, and broader integration of research training with societal and labor market needs. The findings contribute to the broader discussion on the transformation of doctoral education in post-Soviet higher education systems.

Keywords

Doctoral education, higher education, doctoral candidates

INTRODUCTION

Doctoral education has undergone profound transformation over the past two decades as higher education systems respond to increasing globalization, international research collaboration, and the growing demand for highly qualified researchers capable of addressing complex societal challenges. Traditionally centered on the individual relationship between the doctoral candidate and supervisor, doctoral education has increasingly evolved toward structured institutional models that integrate research training, transferable skills development, interdisciplinary collaboration, and systematic quality assurance. These changes have significantly expanded the role of doctoral education beyond the preparation of future academics, positioning doctoral graduates as key contributors to innovation, economic development, and knowledge-based societies.

Many universities worldwide have responded to these developments by establishing doctoral or graduate schools, introducing structured coursework, strengthening supervision and progress monitoring mechanisms, and promoting international mobility and collaboration. International initiatives such as the Bologna Process and the Salzburg Principles have further encouraged the modernization and harmonization of doctoral education across the European Higher Education Area while recognizing the diversity of national higher education systems.

In contrast, doctoral education in many post-Soviet countries continues to reflect institutional traditions inherited from the Soviet model of postgraduate education. Although numerous reforms have been introduced during the last three decades, the pace and scope of transformation have varied considerably across countries. Armenia has also initiated reforms aimed at improving the quality and international competitiveness of doctoral education; however, many organizational, regulatory, and financial characteristics of the traditional model remain in place (Republic of Armenia Law "On Higher and Postgraduate Professional Education", Article 9). As a result, questions persist regarding the extent to which the Armenian doctoral education system corresponds to internationally recognized practices and where the principal opportunities for further modernization lie.

Despite growing scholarly attention to doctoral education reforms, relatively few studies have undertaken a systematic comparison between Armenian doctoral education and the practices of internationally ranked universities using a structured benchmarking approach. Addressing this gap is important for informing evidence-based policy development and institutional decision-making while situating Armenian reforms within broader international and post-Soviet developments.

Accordingly, this study aims to benchmark the Armenian doctoral education system against doctoral education practices implemented by internationally ranked universities in the field of education. Using a qualitative comparative analysis of institutional regulations and policy documents, the study identifies major similarities and differences in organizational structures, admission procedures, educational components, supervision mechanisms, and dissertation assessment. The findings contribute to a better understanding of doctoral education transformation in post-Soviet higher education systems and provide evidence that may support future policy and institutional reforms in Armenia.

LITERATURE REVIEW

Evolution of Doctoral Education

Doctoral education has experienced substantial transformation during the past two decades. Traditionally, doctoral training was based on the apprenticeship model, in which the relationship between a doctoral candidate and an individual supervisor constituted the central element of research education. Contemporary higher education systems, however, increasingly recognize doctoral education as an institutional responsibility requiring structured academic programs, systematic quality assurance, interdisciplinary collaboration, and professional development opportunities. These changes have been driven by the growing internationalization of higher education, expansion of research collaboration, and increasing expectations that doctoral graduates contribute not only to academia but also to innovation, public policy, and industry (Kehm, 2006; McKenna & Van Schalkwyk, 2023).

A major milestone in this transformation was the Bologna Process, particularly the Salzburg Principles (Bologna Seminar on “Doctoral Programmes for the European Knowledge Society” (European University Association, 2005), which established doctoral education as the third cycle of higher education and emphasized the importance of research excellence, institutional autonomy, transparent supervision, and structured doctoral training. Since then, many European universities have established doctoral or graduate schools to coordinate admissions, research training, transferable skills development, quality assurance, and international cooperation (Bologna Seminar, 2005; Hasgall et al., 2019).

Contemporary Models of Structured Doctoral Education

Recent literature indicates that structured doctoral education has become the dominant organizational model among leading universities. Doctoral schools provide a coordinated framework that extends beyond dissertation supervision to include research methodology training, academic writing, transferable skills, research ethics, career development, and continuous progress monitoring. These institutional structures are intended to improve completion rates, strengthen research quality, and prepare doctoral graduates for increasingly diverse career pathways (McKenna & Van Schalkwyk, 2023).

Another significant trend concerns the diversification of doctoral careers. While doctoral education historically focused on preparing future academics, contemporary research highlights the growing importance of transferable competencies that enable graduates to contribute effectively in government, industry, civil society, and international organizations. Consequently, universities increasingly integrate leadership, communication, entrepreneurship, project management, and interdisciplinary collaboration into doctoral training (Jones et al., 2024; Gao, 2021).

Doctoral Education in Post-Soviet Countries

The modernization of doctoral education has followed different trajectories across post-Soviet countries. Although these systems share a common historical foundation rooted in the Soviet model of postgraduate education, national reforms have developed at different speeds and with varying institutional outcomes. Comparative studies suggest that many post-Soviet countries continue to balance inherited academic traditions with increasing alignment to European Higher Education Area principles (Sotnikova, 2022; Sotnikova, 2024).

Research has also shown that several structural characteristics of the Soviet model—including strong disciplinary specialization, individualized supervision, centralized regulation, and limited institutional autonomy—remain visible in many doctoral education systems throughout the region (Bekova & Terentev, 2020; Smolentseva, 2007). At the same time, reforms have increasingly introduced doctoral schools, structured curricula, quality assurance mechanisms, and greater international collaboration, although the extent of implementation varies considerably across countries (Huisman, Smolentseva, & Froumin, 2018).

Doctoral Education in Armenia

Within Armenia, doctoral education has also undergone gradual modernization, particularly through legislative reforms, institutional restructuring, and participation in European cooperation initiatives. Previous studies have identified both significant progress and continuing challenges related to governance, internationalization, quality assurance, funding, and the organization of doctoral studies (Aperyan, 2021; Atoyan, Babajanyan, & Atoyan, 2021). Research specifically addressing doctoral education has emphasized the need to strengthen institutional management, improve supervisory practices, expand structured doctoral training, and increase international integration (Mkhitaryan & Begoyan, 2022).

European capacity-building initiatives, including VERITAS and ARMDOCT, have further supported institutional reforms by promoting doctoral school development, quality assurance, and closer alignment with European standards. Nevertheless, the implementation of these reforms remains uneven, and many traditional organizational features continue to characterize doctoral education within Armenian higher education institutions.

Although previous studies have examined various aspects of doctoral education and higher education reform in Armenia and other post-Soviet countries, relatively little research has undertaken a systematic benchmarking of Armenian doctoral education against internationally ranked universities (Mkhitaryan & Tchughuryan, 2024). This study seeks to address this gap by providing a comparative analysis of organizational models, admission procedures, educational components, supervision mechanisms, and dissertation assessment practices. Through this benchmarking approach, the paper contributes to a better understanding of doctoral education transformation in the post-Soviet context and identifies evidence-based directions for the continued modernization of doctoral education in Armenia.

METHODOLOGY

Research Design and Conceptual Framework

This study employs a qualitative comparative benchmarking approach to examine the alignment between the current model of doctoral education in Armenia and internationally recognized practices implemented by leading universities worldwide. Benchmarking is applied as an analytical tool for identifying differences, common patterns, and potential areas of improvement by systematically comparing institutional arrangements and doctoral education practices across different higher education systems.

The conceptual framework of the study is grounded in contemporary theories of doctoral education transformation, which describe the transition from the traditional apprenticeship model based primarily on individual supervision toward structured doctoral education characterized by institutional responsibility, organized training components, distributed supervision, systematic quality assurance mechanisms, and preparation for diverse academic and non-academic career trajectories (Kehm, 2006; McKenna & Van Schalkwyk, 2023; Sotnikova, 2024).

Sample Selection and Data Sources

The empirical material of the study consists of publicly available institutional and policy documents collected from official university websites, doctoral school regulations, doctoral program descriptions, admission guidelines, and relevant international policy reports.

The selection of universities was conducted in two stages. First, all universities included in the top 10 of the QS World University Rankings by Subject: Education (2025 edition) were analyzed in order to identify the dominant practices among globally leading institutions in the field of education. Second, to ensure geographical and institutional diversity, the study additionally examined universities ranked within the top 100 of the same QS subject ranking, selecting representatives from all countries appearing in the ranking.

The selection of the QS Education ranking was justified by three considerations. First, it provides internationally recognized indicators of academic reputation and research performance. Second, focusing on the Education subject area ensures direct relevance to doctoral training practices within educational sciences, which represent the primary disciplinary context of this study. Third, the inclusion of universities from different national systems allows for a broader comparative understanding of variations in doctoral education models.

Study Timeline and Data Collection Procedures

Data collection was conducted between January and March 2026 through systematic examination of institutional websites and publicly accessible doctoral education documents. A standardized data extraction framework was developed to ensure consistency in the collection and comparison of information across institutions.

For each university, information was collected according to predefined analytical categories. When information was unavailable, unclear, or not explicitly stated in official sources, it was recorded as missing rather than interpreted through indirect assumptions. This approach aimed to increase the reliability and transparency of the comparative analysis.

Analytical Framework and Data Analysis

The analysis was based on five analytical dimensions derived from previous comparative studies on doctoral education and international doctoral policy frameworks, particularly the Salzburg Principles and subsequent studies of doctoral education reforms.

The analytical dimensions included:

1. **Organizational models of doctoral education** – the presence of doctoral or graduate schools, the distribution of institutional responsibilities, and the degree of program structuring.

2. **Admission mechanisms** – selection procedures, requirements for prior research experience, portfolio assessment, interviews, and supervisor selection practices.

3. **Educational components and academic workload** – the structure of coursework, transferable skills development, research methods training, and professional development activities.

4. **Supervision and progress monitoring mechanisms** – the role of individual versus distributed supervision, supervisory committees, progress reports, milestone examinations, and institutional monitoring procedures.

5. **Dissertation completion and defense procedures** – examination requirements, dissertation formats, committee composition, external participation, and academic integrity mechanisms.

The collected data were analyzed using qualitative content analysis and cross-case comparison. Institutional practices were coded according to the five analytical dimensions, allowing identification of recurring patterns, dominant models, and significant differences between internationally ranked universities and the Armenian doctoral education system.

Limitations of the Study

Several limitations should be acknowledged. The study relies exclusively on publicly available institutional documents and therefore examines formally established policies and procedures rather than actual implementation practices or doctoral students' experiences. Additionally, the selected universities represent highly ranked institutions with substantial academic and financial resources, and their models may not be fully transferable to smaller or resource-constrained higher education systems.

Nevertheless, these institutions represent internationally recognized examples of doctoral education organization and provide a useful benchmarking framework for identifying possible directions for the modernization of doctoral education in Armenia.

RESULTS

Organizational Models of Doctoral Education

The comparative analysis demonstrates that doctoral education in internationally ranked universities has undergone a significant transition from the traditional individual apprenticeship model toward more structured institutional arrangements. Three major organizational models were identified in the analyzed sample: (1) doctoral education organized through independent doctoral schools, (2) integrated models involving cooperation among several institutional units, and (3) traditional individual supervision-based models.

The results indicate that doctoral schools or graduate schools represent the dominant organizational framework among internationally ranked universities. A substantial proportion of the examined institutions implement doctoral education through dedicated doctoral schools that coordinate admissions, coursework, doctoral training activities, quality assurance mechanisms, and progress monitoring. In many cases, these schools operate across disciplinary boundaries and provide common training modules for doctoral candidates from different academic fields.

A smaller number of institutions rely on decentralized models in which responsibility for doctoral education is shared among faculties, departments, and specialized research units. However, even in these models, doctoral training is typically supported by institutional regulations, structured learning activities, and formal mechanisms for monitoring doctoral progress.

The traditional model based exclusively on the relationship between a doctoral candidate and a single academic supervisor appears to be increasingly uncommon among leading universities. This finding corresponds with broader international trends emphasizing institutional responsibility for doctoral training, distributed supervision, and systematic quality assurance.

In contrast, the Armenian model of third-level education remains largely influenced by the Soviet academic tradition, where doctoral training is predominantly organized around individual supervision and where institutional structures such as doctoral schools remain underdeveloped.

Admission Principles for Doctoral Programs

The analysis shows that admission procedures in internationally ranked universities generally rely on a comprehensive assessment of applicants' academic potential rather than solely on formal entrance examinations. The most common admission criteria include evaluation of previous academic achievements, research proposals, motivation statements, publications where relevant, recommendations, and interviews.

In many universities, the identification and approval of an appropriate supervisor is an integral component of the admission process. The analysis demonstrates that assigning a supervisor only after admission, which is a common practice in Armenia, is relatively uncommon among the examined institutions.

The reviewed universities also demonstrate different approaches depending on the institutional status of doctoral candidates. In systems where doctoral students are considered primarily students, admissions usually follow fixed annual cycles. In contrast, institutions where doctoral candidates are employed as researchers often use project-based recruitment procedures that are connected to available research funding and research groups.

Some universities additionally use milestone examinations during the initial phase of doctoral education. These examinations function as a quality assurance mechanism by evaluating the doctoral candidate's readiness to proceed to the dissertation stage.

Compared with these practices, the Armenian admission model remains largely examination-oriented and provides fewer mechanisms for evaluating research potential, academic motivation, and compatibility between doctoral candidates and supervisors.

Educational Components and Academic Workload

A major characteristic of contemporary doctoral education is the expansion of structured educational components beyond the traditional focus on dissertation preparation. The examined universities generally include mandatory or optional coursework designed to strengthen disciplinary knowledge, research methodology, academic writing, research ethics, project management, teaching competencies, and transferable skills.

The findings demonstrate that doctoral education is increasingly conceptualized as preparation for diverse professional trajectories rather than exclusively for academic careers. Consequently, many universities provide doctoral candidates with opportunities to develop communication skills, leadership abilities, entrepreneurship competencies, and career planning skills relevant to both academic and non-academic sectors.

In several institutions, coursework serves not only as an educational requirement but also as a mechanism for integrating doctoral candidates from diverse disciplinary and institutional backgrounds. Additional specialization modules, interdisciplinary training opportunities, and advanced methodological courses are frequently incorporated into doctoral programs.

By comparison, the Armenian doctoral curriculum often maintains a more formal character and faces difficulties in systematically developing transferable competencies. The limited financial and institutional resources available for doctoral education, particularly within research organizations, create additional challenges for implementing comprehensive structured programs.

Supervision and Progress Monitoring

The comparative analysis demonstrates a clear movement toward shared responsibility for doctoral candidates' progress. A considerable proportion of the analyzed universities employ distributed supervision models involving multiple supervisors, dissertation committees, doctoral schools, or administrative support structures.

The role of the principal supervisor remains central; however, responsibility for doctoral training is often shared among academic and non-academic actors. Co-supervisors may provide complementary disciplinary expertise, methodological support, or connections with external organizations and industry.

The majority of universities examined have formal mechanisms for monitoring doctoral progress, including regular supervisory meetings, annual progress reports, research seminars, and milestone evaluations. Such procedures reduce the risks associated with dependence on a single supervisor and promote the integration of doctoral candidates into broader academic communities.

In Armenia, supervision remains primarily individualized, with limited institutional mechanisms for distributed responsibility and continuous monitoring. Existing regulatory restrictions also create obstacles for implementing interdisciplinary co-supervision practices.

Dissertation Completion and Defense Procedures

The final stage of doctoral education demonstrates substantial variation among internationally ranked universities. Nevertheless, several common principles can be identified.

Most institutions require independent evaluation of dissertation quality through committees composed of experts in the relevant field. The composition of these committees frequently includes members external to the candidate's department, and many universities encourage or require participation of external or international experts in order to strengthen objectivity and academic standards.

The analysis also demonstrates significant attention to research ethics, authorship transparency, and conflict-of-interest management. Universities establish clear rules concerning the use of previously published articles, co-authorship with supervisors, and plagiarism detection procedures.

Different dissertation formats are accepted internationally, including the traditional monograph and article-based dissertation. The choice of format is generally regulated by institutional policies designed to ensure both academic quality and transparency.

In comparison, Armenian doctoral defense procedures preserve many elements inherited from the Soviet model, particularly regarding disciplinary boundaries, regulatory requirements, and limited flexibility in adopting alternative forms of doctoral supervision and dissertation assessment.

DISCUSSION: Doctoral Education Transformation in the Armenian Post-Soviet Context

The comparative benchmarking analysis demonstrates that the transformation of doctoral education represents a broader international trend characterized by the transition from individualized academic apprenticeship models toward structured doctoral education systems. Contemporary doctoral programs increasingly emphasize institutional responsibility, interdisciplinary collaboration, transferable skills, internationalization, and preparation for multiple professional pathways beyond traditional academic careers. These developments have been documented in recent studies examining the changing landscape of doctoral education and the diversification of doctoral experiences (McKenna & Van Schalkwyk, 2023; Jones et al., 2024).

The Armenian doctoral education system faces the challenge of adapting these global developments while operating within a higher education environment strongly shaped by post-Soviet institutional legacies. Similar challenges have been observed across many post-Soviet countries, where the transition from a unified Soviet model has resulted in different national trajectories of doctoral reform rather than a complete convergence toward Western doctoral education models (Sotnikova, 2022; Sotnikova, 2024). Therefore, the modernization of doctoral education in Armenia should not be understood as a simple transfer of foreign practices but as a process of selective adaptation considering local institutional, regulatory, and socio-economic conditions.

One of the major differences identified in this study concerns the organization of doctoral education. While internationally ranked universities increasingly rely on doctoral or graduate schools as coordinating structures, Armenian doctoral education remains predominantly based on the individual supervisor–doctoral candidate relationship. This institutional arrangement reflects historical traditions of Soviet postgraduate education, in which doctoral training was primarily considered a process of individual scientific mentorship rather than a structured educational program. Similar historical patterns have been identified in broader analyses of higher education transformation in post-Soviet states (Huisman, Smolentseva, & Froumin, 2018).

Another important difference concerns the purpose of doctoral education and expected career outcomes. International literature increasingly recognizes that doctoral graduates contribute to a wide range of sectors beyond universities and research institutions. The expansion of transferable skills training, professional development activities, and career support mechanisms reflects the growing diversity of doctoral career trajectories (Gao, 2021). However, Armenian doctoral education continues to be predominantly designed around the assumption of an academic career, despite the fact that many doctoral candidates enter the non-academic labor market during or after their studies. This discrepancy suggests the need for a broader understanding of the societal role of doctoral education and stronger engagement with external stakeholders.

The findings also demonstrate that introducing international practices requires addressing significant systemic constraints. A key challenge relates to financial conditions. In many leading universities, doctoral candidates receive salaries, research assistantships, project-based funding, or competitive scholarships that allow them to dedicate substantial time to research activities. In Armenia, however, limited financial support frequently requires doctoral students to combine studies with external employment, which may negatively influence completion rates, research productivity, and the duration of doctoral studies.

Institutional capacity represents another significant challenge. Structured doctoral programs require coordinated administrative structures, interdisciplinary teaching opportunities, specialized training modules, and continuous quality assurance mechanisms. Such reforms are particularly difficult to implement in small institutions or research organizations with a limited number of doctoral candidates and insufficient financial resources.

Regulatory restrictions also influence the possibility of implementing international practices. The current system of specialty classifications, dissertation requirements, and supervisor eligibility creates limited flexibility for interdisciplinary research and distributed supervision models. These regulations preserve disciplinary boundaries that may conflict with contemporary trends toward interdisciplinary and collaborative knowledge production.

At the same time, the analysis suggests that Armenia has already begun to develop institutional mechanisms that support gradual doctoral education reform. International cooperation projects, including European capacity-building initiatives such as VERITAS and ARMDOCT, have introduced new approaches related to doctoral school development, quality assurance, international cooperation, and structured doctoral training. However, their impact remains concentrated within participating institutions, and broader systemic transformation requires national-level policy changes, sustainable funding mechanisms, and increased institutional autonomy.

Overall, the findings indicate that successful doctoral education reform in Armenia should be viewed as a process of contextual adaptation rather than direct imitation of internationally ranked universities. The experience of global institutions provides valuable benchmarks; however, effective reform depends on the ability of the Armenian higher education system to integrate these practices with its own institutional realities and developmental priorities.

CONCLUSION

This study examined Armenian doctoral education through a comparative benchmarking analysis of doctoral education practices implemented by internationally ranked universities. The findings demonstrate that while doctoral education systems worldwide have increasingly shifted toward structured models characterized by institutional responsibility, diversified supervision, systematic monitoring, transferable skills development, and broader engagement with societal stakeholders, the Armenian system continues to retain several structural characteristics inherited from the Soviet model of postgraduate education.

The analysis identified several key areas in which differences between Armenian and internationally recognized doctoral education practices are most visible. These include the predominance of examination-based admission procedures, the limited role of portfolio assessment and interviews, the persistence of individual supervision as the dominant model of doctoral guidance, the insufficient institutionalization of doctoral schools, and limited opportunities for interdisciplinary collaboration and professional development beyond academic research.

At the same time, the study demonstrates that the introduction of international doctoral education practices cannot be approached as a simple process of institutional transfer. The Armenian context is characterized by specific regulatory, financial, and organizational conditions that influence the feasibility and sustainability of reform. Therefore, successful modernization requires a balanced approach that combines international quality standards with sensitivity to local institutional capacities and historical traditions.

The findings suggest that future reforms should prioritize the gradual development of structured doctoral programs, the strengthening of institutional mechanisms for quality assurance and doctoral candidate support, the expansion of interdisciplinary and transferable skills training, and the creation of stronger links between doctoral education, research institutions, industry, and wider society.

The study has several limitations that should be considered in interpreting the results. As the analysis is based primarily on official institutional documents and publicly available information, it reflects formal models of doctoral education rather than the lived experiences of doctoral candidates, supervisors, and university administrators. Future research may therefore benefit from empirical studies involving interviews, surveys, and case studies examining the implementation and effectiveness of doctoral reforms in Armenia.

Ultimately, the transformation of Armenian doctoral education should be understood as a long-term process requiring coordinated efforts at institutional and national levels. International experience provides valuable reference points; however, sustainable reform depends on the capacity to adapt these practices to the specific realities, needs, and developmental priorities of the Armenian higher education system.

Declarations

Funding. This research received no specific grant from any funding agency.

Conflicts of interest. The authors declare no conflict of interest.

How to cite this article

Mkhitaryan, A. (2026). Benchmarking Armenian Doctoral Education Against Internationally Ranked University Practices in the Post-Soviet Context. The Gufo. https://doi.org/10.70416/3331226

https://doi.org/10.70416/3331226

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