

BETWEEN EDUCATION AND SCIENCE: WHICH IS CLOSER TO DOCTORAL EDUCATION?

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Abstract

With “Berlin Communiqué”, the Bologna Process began to focus on doctoral education as the third level of higher education [1]. Since then, many improvements and concretisations have been made at the European level. The traditional doctoral education – Aspirantura in Armenia (and in other Soviet republics) was a model of “apprenticeship”: the responsibility for the PhD student is exclusively a matter of the supervising professor (or “scientific supervisor”) due to the close relation between the doctoral candidate and professor. Then, after Armenia’s independence, structured postgraduate programs gradually began to increase. This process proceeded at almost the same speed in other European countries that joined the Bologna Process (Armenia joined the Bologna Process in 2005).

After implementing the Bologna Process for the first and second cycles in most European countries, the third cycle is the next logical step. Yet, one should not expect regulations for the third cycle as detailed as for the reform of the Bachelor’s and Master’s programmes. The “London Communiqué” [2] states that “we recognise the value of developing and maintaining a wide variety of doctoral programmes”. On the other hand, “Ministers consider it necessary to go beyond the present focus on two main cycles of higher education to include the doctoral level as the third cycle in the Bologna Process”.

How can the research institutes and the National Academy of Sciences handle this situation? An easy top-down approach would be to wait for new national regulations and implement them gradually when they are established by the Government. Our bottom-up approach, instead, is to ask: What is the better model for the doctoral candidates (aspirants) and the scientific organisation? At the National Academy, we currently run both models, a traditional Soviet doctoral education (with ad hoc funding from research projects) and a structured educational doctoral programme. The goal of this paper is to evaluate the strengths and weaknesses of both models and to come to a preliminary conclusion from the perspective of modern requirements of the Armenian economy, whether to

- go back to the traditional Soviet “apprenticeship model”,
- switch entirely to a structured educational doctoral programme,
- run both modes in parallel, depending on the funding opportunities.

Keywords and phrases: Bologna process, Doctoral education, structured doctoral programme, PhD, third level, Aspirantura.

ԿՐԹՈՒԹՅԱՆ ԵՎ ԳԻՏՈՒԹՅԱՆ ՄԻՋԵՎ. ՈՐՐՆ Է ԱՎԵԼԻ ՄՈՏ ԴՈԿՏՐԱԿԱՆ ԿՐԹՈՒԹՅԱՆԸ

ԱՏՈՄ ՄԻԻԹԱՐՅԱՆ

ՀՀ ԳԱԱ գիտակրթական միջազգային կենտրոնի դեկան,
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Համառոտագիր

Բեռլինյան կոմյունիկետվ Բոլոնիայի գործընթացը սկսեց կենտրոնանալ դոկտորական կրթության վրա՝ որպես երրորդ մակարդակի բարձրագույն կրթություն [1]: Այդ ժամանակից ի վեր եվրոպական մակարդակով բազմաթիվ բարելավումներ ու կոնկրետացումներ են կատարվել: Ավանդական դոկտորական կրթությունը՝ ասպիրանտուրան Հայաստանում (և խորհրդային այլ հանրապետություններում) «աշկերտության» մոդել էր. ասպիրանտի պատասխանատվությունը բացառապես գիտնական պրոֆեսորի (կամ «գիտական ղեկավարի») խնդիրն է՝ ասպիրանտի և պրոֆեսորի սերտ հարաբերություններով պայմանավորված: Այնուհետև, Հայաստանի անկախացումից հետո աստիճանաբար սկսեցին աճել կառուցվածքային երրորդ մակարդակի կրթության ծրագրերը: Այս գործընթացը գրեթե նույն արագությամբ ընթացավ Բոլոնիայի գործընթացին միացած եվրոպական այլ երկրներում (Հայաստանը միացավ Բոլոնիայի գործընթացին 2005թ.):

Եվրոպական երկրների մեծ մասում առաջին և երկրորդ մակարդակներում Բոլոնիայի գործընթացն իրականացնելուց հետո երրորդ փուլը տրամաբանական հաջորդ քայլն է: Այնուամենայնիվ, երրորդ փուլի համար չպետք է ակնկալել այնպիսի կարգավորումներ, ինչպիսիք են բակալավրի և մագիստրոսական ծրագրերի բարեփոխումները: «Լոնդոնի կոմյունիկեն» [2] նշում է, որ «մենք ընդունում ենք դոկտորական ծրագրերի լայն տեսականի մշակելու և պահպանելու արժեքը»: Մյուս կողմից, «Նախարարներն անհրաժեշտ են համարում դուրս գալ բարձրագույն կրթության երկու հիմնական փուլերի ներկա սահմաններից՝ դոկտորական մակարդակը որպես երրորդ փուլ Բոլոնիայի գործընթացում ներառելու համար»:

Ինչպե՞ս կարող են գիտահետազոտական ինստիտուտները և ԳԱԱ-ն կարգավորել այս իրավիճակը: Վերից վար հեշտ մոտեցումը կլինի՝ սպասել նոր ազգային կանոնակարգերի և աստիճանաբար դրանք կիրառել, երբ դրանք հաստատվեն կառավարության կողմից: Փոխարենը, մեր մոտեցումը ներքևից վերնն է. ո՞րն է ավելի լավ մոդելը դոկտորանտների (հայցորդների) և գիտական կազմակերպությունների համար: Ազգային ակադեմիայում մենք ներկայումս կազմակերպում ենք երկու՝ ավանդական խորհրդային դոկտորական կրթություն (հետազոտական նախագծերի ֆինանսավորմամբ) և կառուցվածքային կրթական դոկտորական ծրագիր մոդելները: Սույն աշխատության նպատակն է գնահատել երկու մոդելների ուժեղ և թույլ

կողմերը և նախնական եզրակացության գալ Հայաստանի տնտեսության ժամանակակից պահանջների տեսանկյունից՝ արդյոք.

- վերադառնալ ավանդական խորհրդային «աշկերտության մոդելին»,
- ամբողջությամբ անցնել կառուցվածքային կրթական դոկտորական ծրագրի,

- գործարկել երկու ռեժիմները զուգահեռաբար՝ կախված ֆինանսավորման հնարավորություններից:

Բանալի բառեր և բառակապակցություններ՝ Բոլոնիայի գործընթաց, դոկտորական կրթություն, կառուցվածքային դոկտորական ծրագիր, երրորդ մակարդակ, ասպիրանտուրա:

МЕЖДУ ОБРАЗОВАНИЕМ И НАУКОЙ: ЧТО БЛИЖЕ К ДОКТОРАНТУРЕ?

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Аннотация

С «Берлинским коммюнике» Болонский процесс начал фокусироваться на докторантуре как на третьем уровне высшего образования [1]. С тех пор на европейском уровне было сделано много улучшений и конкретизаций. Традиционное докторантское образование — аспирантура в Армении (и в других советских республиках) было моделью «ученичества»: ответственность за аспиранта — это исключительно дело курирующего профессора (или «научного руководителя») из-за тесной связи между докторантом и профессором. Затем, после обретения Арменией независимости, структурированные программы аспирантуры постепенно начали расширяться. Этот процесс шел почти с той же скоростью в других европейских странах, присоединившихся к Болонскому процессу (Армения присоединилась к Болонскому процессу в 2005 году).

После внедрения Болонского процесса для первого и второго цикла в большинстве европейских стран, третий цикл является следующим логическим шагом. Тем не менее, не следует ожидать, что правила для третьего цикла будут столь же подробными, как для реформы программ бакалавриата и магистратуры. В «Лондонском коммюнике» [2] говорится, что «мы признаем ценность разработки и поддержания широкого спектра докторских программ». С другой стороны, «министры считают необходимым выйти за рамки нынешнего фокуса на двух основных циклах высшего образования, чтобы включить докторский уровень в качестве третьего цикла в Болонский процесс».

Как научно-исследовательские институты и Национальная академия наук могут справиться с этой ситуацией? Простым подходом сверху вниз было бы дождаться новых национальных правил и постепенно внедрять их, когда они

будут установлены правительством. Вместо этого наш подход снизу вверх заключается в том, чтобы спросить: какая модель лучше для докторантов (претендентов) и научной организации? В Национальной академии мы в настоящее время используем обе модели: традиционное советское докторское образование (с разовым финансированием из исследовательских проектов) и структурированную образовательную докторскую программу. Цель этой статьи — оценить сильные и слабые стороны обеих моделей и прийти к предварительному выводу с точки зрения современных требований армянской экономики. Следует ли:

- вернуться к традиционной советской «модели ученичества»;
- полностью перейти на структурированную образовательную докторскую программу;
- запускать оба режима параллельно в зависимости от возможностей финансирования.

Ключевые слова: Болонский процесс, докторское образование, структурированная докторская программа, PhD, третий уровень, аспирантура.

Introduction: “Bologna-conformant doctoral education

Most Bologna Process member countries have adopted new higher education legislation to introduce and regulate elements of the Bologna Process, although there are different speeds in the implementation. The Bologna Process also has a global effect, positive or negative, e.g., in the USA, more and more prestigious universities recognise the European three-year Bachelor programs for accessing postgraduate programs; China is looking at the Bologna Process due to its interest in student mobility to Europe. After the “official” start of the Bologna Process with the Bologna Declaration in 1999, focusing on Bachelor and Master programmes, and the inclusion of the third cycle in declared in more concrete terms:

- Doctoral-level qualifications need to be fully aligned with the European Higher Education Area (EHEA) overarching framework for qualifications using the outcomes-based approach,
- The core component of doctoral training is the advancement of knowledge through original research,
- The normal workload of the third level in most countries would correspond to 3–4 years full-time,
- Universities are urged to ensure that their doctoral programmes promote interdisciplinary training and the development of transferable skills, thus meeting the needs of the wider employment market,
- Overregulation of doctoral programmes must be avoided.

Also, the European Commission provided a further consolidation regarding the role of doctoral candidates in its “European Charter for Researchers” [3]. “All researchers engaged in a research career should be recognised as professionals and be treated accordingly. This should commence at the beginning of their careers, namely at the postgraduate level...” and provide adequate salaries including social security provisions as well as appropriate conditions during their training phase, e.g., structured and multi-faceted supervision, career advice and career development opportunities, and mobility measures.

New specific objectives were to focus on learning outcomes, including “transferable skills” and ways to enhance employability [4]: the Leuven Communiqué focused on overall topics such as social dimensions, life-long learning, mobility, employability, and organisational structure of the future Bologna Process.

In contrast to Bachelors and Masters programmes, third-level higher education is comparably little affected by the Bologna Process. A diversity of models continues to exist, and a length of 3–4 years is the most common duration. In 16 countries, a PhD has a duration of 3 years; in 9 countries, 3–4 years; and in 6 countries, 4 years. In 6 countries, there is a duration of 3–5 years, and some countries are out of this range (e.g., Cyprus – up to 8 years, Lithuania up to 6 years, etc). For comparison, note that top research universities in the US, which typically has no structured PhD programmes, but substantial course requirements, often have median thesis completion times of 5 or more years.

At the European Higher Education Area Ministry Conference at Bucharest [5], few progress was made regarding the third-cycle education, rather “Taking into account the “Salzburg II recommendations” [6] and the “Principles for Innovative Doctoral Training”. These principles rather focus on economic needs and that “it is important to focus on doctoral training as this is the qualification that should enable researchers to move into a wide range of employment sectors”. Furthermore, general principles (recommendations) for improving the quality of doctoral programs are provided. The report clearly votes for “doctoral schools” with structured doctoral programmes and “collaborative research with other institutions (joint programmes, which may lead to joint or double degrees)”.

In the context of the Bologna Process, there are no official regulations so far. Therefore, the term “Bologna-conformant doctoral education” does not refer to a fixed set of rules. Key features of a Bologna-conformant third cycle can be summarised as follows:

Value of excellent doctoral education: The European Charter for Researchers identified a potential shortage of researchers, which “will pose a serious threat to EU’s innovative strength, knowledge capacity and productivity growth in the near future”. “Within this context, particular priority should be given to the organisation of working and training conditions in the early stage of the researchers’ careers, as it contributes to the future choices and attractiveness of a career in R&D”.

Learning outcomes: The core component of the third cycle is the advancement of knowledge through original research. According to the European Qualifications Framework, the “learning outcomes relevant to Level 8 are knowledge at the most advanced frontier of a field of work or study and at the interface between fields”.

Structured programmes: The “Bergen Communiqué” considered the need for structured doctoral programmes and installed a follow-up group to further develop their basic principles [7]. According to the EUA (European University Association), 30% of European higher education institutions surveyed say they have established some kind of doctoral, graduate or research school. “Some kind of” should be highlighted because it shows a dilemma: Not having official regulations or not even a clear definition of a Bologna-conformant structured doctoral programme makes it hard to evaluate how many fulfil these criteria.

Duration: “Doctoral programmes should operate within appropriate time duration (three to four years full-time as a rule)”. Another quality aspect of doctoral

education is acceptable completion rates.

Status as professionals and funding: The statements are ambiguous. On the one hand: “We consider participants in third cycle programmes both as students and as early stage researchers” [7]; **on** the other hand, the European Charter for Researchers sees it a bit differently: “All researchers engaged in a research career should be recognised as professionals and be treated accordingly”. This includes fair and attractive conditions of funding and/or salaries with adequate and equitable social security provisions (including sickness and parental benefits, pension rights and unemployment benefits) according to national laws. Also, in reality, there are different perspectives: 29 of 49 participating Bologna countries [8] considered the status of doctoral candidates as “mixed” (students and employees), 14 countries only as students, and 6 countries only as employees.

Recruitment and selection: In a non-structured doctoral education, the process is more like this: a professor knows a good student from his/her university and asks him/her if he/she wants to write a PhD thesis”. According to the Conduct for the Recruitment of Researchers, employers and/or funders should establish recruitment procedures that are open, efficient, transparent, supportive, and internationally comparable [3]. The advantage is that broader channels of advertisement are used; consequently, more potential PhD students apply, so the choice is bigger. A selection committee (vs. a single professor) is supposed to make more substantial selection decisions, and the process is more transparent, structured in a better way, and publicly documented. US universities, again for comparison, have had such selection processes for a long time, with ambiguous results. A broader participation in the selection can reduce the weight of the scientific potential of candidates.

Multiple supervision complements the traditional one-to-one apprenticeship model. Supervision must be a collective effort with clearly defined and written responsibilities of the main supervisor, supervisory team, doctoral candidate, doctoral school, research group and the institution, leaving room for the individual development of the doctoral candidate. The most important aspect is that of supervision by a group of supervisors vs. a single professor. Another aspect is informal supervision, leading to the next issue of **the research environment**.

All of these aspects are fulfilled, almost by definition, in structured doctoral programmes. The environment of a structured programme is interdisciplinary, inter-sectorial, and inter-organisational and fosters informal supervision through the feedback of PhD colleagues, other professors in the programme, and feedback on presentations and publications. As such, a research environment is supposed to be stimulating and evoke the best possible results from the PhD students. The “environment” also includes student services, e.g., accommodation, visa information, and organisation of administrative issues.

Employability is a key concern of structured doctoral programmes. It is stressed quite often that more than half of PhD earners do not choose careers in academia both in Armenia and in other countries that have joined the Bologna Process [9]. So it makes sense for the European Ministers for Education to “invite our HEIs to reinforce their efforts to embed doctoral programmes in institutional strategies and policies, and to develop appropriate career paths and opportunities for doctoral candidates and early stage researchers”. A first approach is to teach soft skills

(transferable skills) such as time management, project proposing and management, writing and communication skills, copyright regulations, risk management, and research ethics. This helps doctoral candidates targeting both academic and non-academic careers.

Internationalisation and mobility: International students, especially at the graduate level, represent a huge part of the knowledge creation workforce in many universities of industrialised nations. Doctoral programmes are a key component of the discussion on European higher education in a global context, while at the institutional level, attracting the best doctoral candidates from all over the world, encouraging mobility within doctoral programmes and supporting European and international joint doctoral programmes and co-tutelle arrangements, are central to the development of any international strategy.

Structured vs. Non-Structured Doctoral Programmes – Pros & Cons

Let us examine the pros and cons of educational structured and non-structured research-based doctoral programmes – theoretically as well as from the point of view of the National Academy of Sciences with experience in both models.

Value: At the European level, (doctoral) education is considered a valuable economic and societal resource. There is no contradiction to this in Armenia. Doctoral education is highly appreciated – as Armenia has one of the highest proportions of doctorates in relation to the number of graduates worldwide [9].

Learning outcomes: The Armenian and the European Qualification Frameworks are compatible. Probably most professors would agree that graduates with doctorates must have acquired the most advanced and specialised skills and techniques, including synthesis and evaluation, required to solve critical problems in research or can be expected to be able to promote, within academic and professional contexts, technological, social or cultural advancement in a knowledge-based society. At this abstract level, there are hardly any differences between structured and non-structured doctoral programmes. If we are looking at learning outcomes in terms of knowledge, skills, and competencies in more detail, we can observe differences between structured and non-structured doctoral programmes: Bologna-conformant doctoral education provides transferable skills (soft skills) and supports career development. Both research skills for the discipline and career management skills have their place in a doctoral training programme. Already in the traditional doctoral education, doctoral candidates presented their research at conferences, attended courses in scientific writing or career building, organised international events, taught classes, and cooperated with international partners, thus acquiring transferable skills such as communication skills, English language proficiency, writing and presentation skills, multicultural competencies, and building up professional networks. The difference is: the structured doctoral programme reliably conveys all these skills to all doctoral candidates due to a mandatory course programme of 30 ECTS credit points, mandatory milestones such as journal and conference publications. A second aspect is the mediation of interdisciplinary knowledge. Armenian (and other post-Soviet) doctoral candidates are especially known for being schooled in great depth in their specific fields, but they often lack a broader orientation. In order to avoid such an “over-specialisation”, the mandatory course program of any structured doctoral

programme should contain field-specific and interdisciplinary courses.

Duration: Bologna-conformant doctoral education should last 3 to 4 years. In Armenia, an average duration of 4 years is estimated overall, with structured doctoral programmes achieving 3 to 4 years (Aspirantura with full-time and part-time education). The “PhD candidate without a scholarship” (соискатель, հայցորդ) system is still in operation in Armenia; its duration is 5 years. Another aspect of duration is completion rates. Our research shows that less than 1/2 of Armenian PhD candidates entering Aspirantura complete it [9]. One can estimate that the duration for full-time doctoral candidates will be 3 to 3.5 years, and for candidates with part-time or no scholarships, it is closer to 4 to 4.5 years. From our point of view, the structured doctoral programme supports shorter duration, higher completion rates, and better outcomes.

Status as professionals and funding: As described above, there is an ambiguous attitude in the European context on whether to see doctoral candidates as students or as professionals. However, the most important factor in this regard is the situation a single doctoral candidate is in:

- Doctoral candidates should be well prepared for the professional life after the PhD,
- “Having fair and attractive conditions of funding and/or salaries with adequate and equitable social security provisions”, as stated in the European Charter for Researchers [3].

The European Commission is implementing this approach in its different doctoral programmes, requiring working contracts vs. regular scholarships wherever possible according to national regulations. Also in Armenia, recently, tripartite agreements have been signed, where, in addition to the PhD student, the scientific supervisor and the director of the corresponding institute of the National Academy also sign. Apart from “what is best”, there is also the question of financial realities. The majority of doctoral candidates work, either within institutional positions at the research institutes or universities or in funded projects. A very small percentage relies on state scholarships.

Considering the question of structured vs. non-structured doctoral programmes in terms of funding, there are no advantages for structured programmes in European countries. There is a potential advantage because structured programmes often go along with scholarships. However, apart from the question of working contract vs. regular scholarship, one can observe a clear advantage of a Bologna-conformant doctoral programme: a contractual basis between the doctoral candidate and the university. Assuming this as an effect of a “more professional attitude” (of both students and advisors!) within structured doctoral programmes, one can regard the regulation of rights and duties as a substantial advantage – for both parties.

Recruitment and selection: An ethical, fully supported requirement within the Bologna process is the conduction of fair and transparent recruitment and selection procedures. Our experiences show that the Bologna-conformant procedures also have practical advantages for the research institute and for the doctoral candidates. Due to the central role of the scientific adviser, in the traditional model, recruitment and selection are bilateral, based on personal contacts, and very often within the same institution. The biggest advantage of the recruitment and selection procedures in the structured doctoral programme was to find the best possible

candidates:

- By a public call for applications, one can reach a much higher number of applicants,
- The percentage of international applicants (and also selected doctoral candidates) is significantly higher,
- Many applicants are external, not only in terms of institution or nationality but also in terms of research fields. Applicants with different research backgrounds can be selected, thus contributing to the interdisciplinarity of the doctoral group and, finally, of the research organisation,
- Single professors can make mistakes. A selection committee instead provides a broader view of an applicant, thus avoiding the selection of less-qualified applicants. Also, for doctoral candidates applying to a programme (vs. applying to a single professor), there are several advantages:
 - By public calls for applications, he/she becomes aware of specific research fields and opportunities he/she has never heard of before.
 - A structured doctoral programme is typically well described. Due to publicly available programme information, the applicant can get a much better picture if his/her expectations are matched and by knowing what his/her personal PhD could look like,
 - An application procedure requires some effort, thus forcing the applicant to think about the advantages and disadvantages of the doctoral programme and to re-think his/her motivation.

Multiple supervision and research environment: Traditional doctoral education relies more on the self-organisation of the doctoral candidates. In the context of supervision, it is important to emphasise that the duties of the supervisors are also documented – so a controlling concept also includes the control of the supervisors. In the structured doctoral programme, supervision consists of a set of formal and informal procedures and tools. Rather formal are:

- The main supervisor plays a key role in the formal assessment by evaluating and discussing quarterly progress reports and other milestones,
- The co-supervisor ideally has a different background than the supervisor and is from another institution or another country,
- In the structured doctoral programme, we could engage a postdoctoral researcher, who is the ideal contact point and consultant on a day-to-day basis,
- In public defences of advanced thesis proposals, doctoral candidates receive feedback from the research institute members,
- The first mandatory publication has to be presented at an international conference in order to get feedback from international experts.

Informal supervision procedures and tools are created by the research environment:

- Research is organised in so-called research initiatives. In this way, a doctoral candidate has access to a group of professors involved,
- The structured doctoral programme is group-based rather than based on the individual approach in the traditional model. For example, the doctoral candidates organised a research retreat; they presented results in an online seminar with colleagues from other universities or research institutes, and they came up with a joint case study covering all these topics – so there are many opportunities to talk

to and to receive feedback by other doctoral candidates,

- Doctoral candidates are encouraged to attend international conferences, workshops, research visits or summer schools, where they get external feedback.

Maybe most important is the idea of an “environment”. Within an “environment” (vs single entry points in the traditional model), doctoral candidates can build up personal networks and have access to many other researchers, who might be of interest to them. High numbers of cross-thesis publications are just one example of the significant benefits. Another aspect of the “environment” is services for doctoral candidates. Through the introduction of the structured doctoral programme, we can achieve the critical mass for better organised and standardised services such as language courses, accommodation, visa support, pre-arrival information, etc.

Employability: Today, on average, two-thirds of the doctors in developed European countries must find a professional position in commerce and industry. These numbers made employability a major topic in the Bologna Process. One solution is to re-think the general concepts and contents of doctoral education. Another solution is to teach additional transferable skills and competencies in order to support career development. As for the concepts of doctoral education, there is a consensus that the core component of third-level higher education is the advancement of knowledge through original research. One could claim that the ongoing discussion has neglected that academia is still a big market for doctoral candidates, and each institute has to position itself in an increasingly competitive market [10]. As for mediation of additional transferable skills and competencies to support career development, the need can be claimed for both research-oriented and professional doctorates. The European, including Armenian and post-Soviet tradition of the Doctorate – as the production of a piece of original research under the supervision of one professor, with very little emphasis on taught courses – has been increasingly questioned in recent years. Discussions have focused on the need to make Doctoral degree holders more competitive internationally.

At the Armenian National Academy of Sciences, the structured doctoral programme improved transferable skills among graduates. The international research environment, especially in the natural sciences, increases English language proficiency and multicultural competencies. Doctoral candidates communicate, present and write more than in the traditional model. The program will soon include courses in project management, proposal writing, and scientific writing, as well as a mandatory organisation of an international research event. There are more opportunities to create professional networks and organise youth scientific conferences.

Summary and Conclusions

A continuing discussion at the European and national levels regarding the Bologna-conformant third-cycle education suggests that, despite some lack of clarity on the outcomes, structured doctoral programs will become more common, but a high degree of flexibility will remain. One of the driving forces for structured doctoral education will be funding programmes such as Erasmus Plus in Europe and the State Committee of Higher Education and Science in Armenia.

This paper examines the evolution of doctoral education in Armenia within the context of the Bologna Process, contrasting the traditional Soviet-era

“apprenticeship model” (Aspirantura) with modern structured doctoral programs. Armenia’s integration into the Bologna Process in 2005 prompted a shift toward aligning its higher education system with European standards, particularly for the third cycle (doctoral education). Historically, Aspirantura emphasised close, individualised mentorship under a single supervisor, fostering deep specialisation but often lacking interdisciplinary exposure and formal training in transferable skills. Post-independence reforms introduced structured programs, which integrate coursework, interdisciplinary collaboration, and standardised milestones, aiming to enhance employability and meet global academic and labour market demands.

We evaluate both models through the lens of Armenia’s National Academy of Sciences, which currently operates hybrid systems. Structured programs demonstrate advantages in completion rates, employability via mandatory transferable skill development (e.g., project management, scientific communication), and transparent recruitment processes that attract diverse international candidates. They also foster collaborative supervision and robust research environments, mitigating overspecialisation. Conversely, the traditional model offers flexibility and cost-effectiveness through ad hoc project funding but risks inconsistent outcomes due to reliance on individual supervisor–student dynamics and limited accountability.

While structured programs align with Bologna objectives—emphasising mobility, employability, and quality assurance—we are against overregulation. The conclusion is that a hybrid approach, selectively combining structured programs (for funded, interdisciplinary research) with traditional apprenticeships (in resource-constrained scenarios), may best serve Armenia’s economic and academic needs. However, structured models are prioritised for their capacity to produce globally competitive graduates equipped for diverse careers, reflecting Armenia’s transition toward a knowledge-based economy. The analysis underscores the importance of balancing institutional flexibility with structured frameworks to enhance doctoral education’s relevance and rigour. So, while doctoral education is evolving and still remains somewhere between education and science, it is also moving away from pure science and toward more structured educational programs.

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