MODERNIZING SCIENTIFIC AND METHODOLOGICAL POTENTIAL IN HIGHER PEDAGOGICAL EDUCATION

Subhonova Anora Akmal qizi
Doctor of Philosophy (PhD)
in Pedagogical Sciences
English integrated course №1 department
Uzbekistan state world languages university
subkhanovaanosha@gmail.com
ORCID: 0009-0006-6461-875X
https://doi.org/10.5281/zenodo.23211985

Abstract

Purpose: Since 2017, Uzbekistan has undertaken one of the most ambitious higher education reform programmes in the post-Soviet space, expecting universities to raise research productivity and integrate into the international academic community. Pedagogical universities are central to this agenda, yet little is known about how their academic staff experience the modernization of their scientific and methodological potential. This study identifies the main challenges and opportunities of that modernization. A qualitative theoretical design was used, combining a policy document analysis of five core national documents adopted between 2017 and 2022 with an integrative review of international and regional literature on teacher-educators' research capacity and post-Soviet higher education. Policy documents frame modernization mainly through output indicators such as indexed publications and rankings. The literature indicates four main challenges for teacher-educators: methodological traditions that differ from international expectations, heavy teaching loads, language and publication barriers, and weak institutional research infrastructure. Opportunities arise from the expansion of academic autonomy, the restored two-tier doctoral system, international partnerships and digital research resources. The study offers an integrated analysis of policy intentions and documented challenges regarding research capacity in Uzbek pedagogical universities and proposes a capacity-oriented, rather than metric-driven, modernization strategy.

Keywords: higher pedagogical education; teacher-educators; research capacity; education reform; Uzbekistan; Central Asia; academic development

1. Introduction

1.1 Background

Higher education systems worldwide are under pressure to become more research-intensive, internationally visible and accountable for the quality of their outputs (Marginson, 2016; Hazelkorn, 2015). For post-Soviet systems, this pressure has a particular character. Under the Soviet model, research was concentrated in academies of sciences and specialized institutes, while universities, especially pedagogical institutes, were primarily teaching organizations (Smolentseva, 2017; Huisman et al., 2018). The task of turning teaching-oriented institutions into research-active universities therefore involves not only additional

funding but also a deep change in academic roles, professional identities and institutional cultures.

Uzbekistan offers an instructive case. After 2016 the country launched a broad reform agenda that included the restoration of the two-tier doctoral system of PhD and Doctor of Science (DSc) degrees (Decree No. UP-4958, 2017), the adoption of the Concept for the Development of the Higher Education System until 2030 (Decree No. UP-5847, 2019), a new Law "On Education" (2020), the Concept for the Development of Science until 2030 (Decree No. UP-6097, 2020) and the Development Strategy of New Uzbekistan for 2022–2026 (Decree No. UP-60, 2022). Among other aims, the 2030 Concept sets targets for including national universities in international rankings, introducing the credit-module system and increasing the share of academic staff with scientific degrees. Higher education access has also expanded rapidly, multiplying the number of students and institutions within a few years.

Pedagogical universities occupy a strategic position in this transformation. They prepare the teachers on whom all other reforms depend, and their academic staff are expected simultaneously to modernize teaching, supervise student research, publish in internationally indexed journals and translate research into school practice. In this article, the capacity to meet these expectations is referred to as scientific and methodological potential: the motivational, epistemological, methodological, reflexive, ethical and communicative resources that enable teacher-educators to generate pedagogical knowledge, apply it in teaching and disseminate it to academic and professional communities.

1.2 Literature review

International research on teacher-educators shows that research engagement is valued but unevenly realized. Teacher-educators often enter higher education as experienced school practitioners and experience a difficult transition into a scholarly identity (Murray & Male, 2005). Their "researcherly disposition" varies widely and depends on both individual factors and institutional support (Tack & Vanderlinde, 2014; Tack et al., 2018). Studies of teacher research engagement consistently identify a lack of time, limited methodological training and weak institutional incentives as the main barriers (Borg, 2010). These findings suggest that research capacity is an individual-in-context phenomenon that cannot be developed through individual training alone (Hargreaves & Fullan, 2012).

Research on post-Soviet higher education adds a second layer. Reforms in the region have often been driven by external models and international indicators, producing what Silova (2011) calls a process of borrowing that is reinterpreted under local conditions. Heyneman (2010) and Silova et al. (2007) highlight persistent problems of underfunding, low academic salaries and governance structures that limit academic autonomy. In Uzbekistan specifically, Ruziev and Burkhanov (2018) describe how post-independence reforms changed the structure of the system while leaving many traditional practices intact. A further concern is the rapid growth of publication pressure: bibliometric research has shown that several Central Asian countries, including Uzbekistan, have among the highest shares of articles in potentially predatory journals indexed in Scopus (Macháček & Srholec, 2022), a pattern often linked to indicator-based incentives (Grudniewicz et al., 2019).

International frameworks offer an alternative reference point. The Standards and Guidelines for Quality Assurance in the European Higher Education Area (ESG, 2015) make

institutions responsible for the competence and development of their teaching staff, and ResearchComp (European Commission, 2023) describes researcher competence broadly, covering cognitive abilities, doing research, managing research, working with others and making an impact. Literature on world-class universities likewise emphasizes that research excellence depends on a concentration of talent, adequate resources and favourable governance rather than on targets alone (Altbach & Salmi, 2011; Salmi, 2009).

1.3 Research gap and aims

Although the general features of reform in Uzbekistan have been described, no study has systematically examined how national policy expectations relate to the scientific and methodological potential of staff in pedagogical universities, or which challenges and opportunities this process involves. Without such evidence, modernization risks being reduced to quantitative targets that do not build real research capacity. This study addresses three research questions:

- **RQ1:** How do national policy documents conceptualize the modernization of scientific and methodological potential in higher pedagogical education?
- **RQ2:** What challenges does the modernization of scientific and methodological potential face in Uzbekistan's pedagogical universities?
- **RQ3:** What opportunities created by the reforms can be used to strengthen this potential?

2. Methods

2.1 Research design

The study used a qualitative theoretical design based on policy document analysis and an integrative literature review. It does not collect primary data from participants; instead, it examines how national policy defines the modernization of research capacity and interprets these policies in light of international research on teacher-educators and post-Soviet higher education. This design is appropriate because a systematic analysis of policy intentions and their likely consequences is a necessary first step before empirical studies of institutional practice can be designed.

2.2 Policy document analysis

Following Bowen (2009), five core national documents adopted between 2017 and 2022 were selected purposively because they define the strategic direction of higher education and science and set expectations for academic staff (Table 1). The documents were obtained from the official legal database of the Republic of Uzbekistan (lex.uz). Each document was coded for (a) stated goals, (b) indicators and targets, (c) mechanisms and instruments, and (d) the implied conception of research capacity.

Table 1. Core policy documents included in the analysis

Document	Year	Relevance to scientific and methodological potential
Decree No. UP-4958 "On further improvement of the system of postgraduate education"	2017	Restoration of the PhD/DSc two-tier system
Decree No. UP-5847, Concept for the Development of the Higher Education System until 2030	2019	Rankings, credit-module system, staff qualification targets
Law of the Republic of Uzbekistan No. ZRU-637 "On Education"	2020	Legal basis for autonomy and quality assurance
Decree No. UP-6097, Concept for the Development of Science until 2030	2020	Research priorities; integration of science and education
Decree No. UP-60, Development Strategy of New Uzbekistan for 2022–2026	2022	National goals for education and science

2.3 Integrative literature review

An integrative review (Torraco, 2005) was conducted to identify the challenges and conditions that shape the research capacity of teacher-educators internationally and in post-Soviet systems. Sources were identified in Scopus, Web of Science and Google Scholar using terms such as "teacher educator", "research capacity", "researcherly disposition", "post-Soviet higher education", "Central Asia" and "Uzbekistan", supplemented by backward citation tracking. Peer-reviewed studies, edited volumes and reports from international organizations were included.

2.4 Analysis and synthesis

Policy documents were analysed through qualitative content analysis, first deductively, using the six components of scientific and methodological potential (motivational, epistemological, methodological, reflexive, ethical and communicative) as categories, and then inductively. Findings from the literature were mapped onto the same components to identify the main challenges and opportunities for each. The results were integrated in a matrix that links policy intentions, documented challenges and reform-generated opportunities.

3. Results

3.1 Policy conceptualization of modernization (RQ1)

The document analysis revealed three dominant features of policy discourse. First, modernization is framed predominantly through **output indicators**: the number of publications in Scopus and Web of Science journals, positions in international rankings, the

proportion of staff with scientific degrees and the number of defended dissertations. Second, the documents emphasize **structural mechanisms**, such as the PhD/DSc system, the credit-module system, academic and financial autonomy, and the integration of research institutes with universities. Third, the **development of academic staff** is addressed mainly in terms of qualification upgrading and internships abroad, while research ethics, methodological training, mentoring and protected research time receive comparatively little attention. Overall, the policy documents conceive research capacity as something that can be stimulated by targets and incentives, rather than as a multidimensional potential that requires systematic development.

3.2 Challenges for modernization (RQ2)

Mapping the international and regional literature onto the components of scientific and methodological potential identified four main challenges.

Challenge 1: Methodological traditions and new expectations. In the Soviet and early post-Soviet tradition, pedagogical research was dominated by theoretical and normative-descriptive approaches, and doctoral training focused on subject content and formal dissertation requirements (Smolentseva, 2017; Huisman et al., 2018). International journals, by contrast, expect empirical designs, transparent methods, statistical or systematic qualitative analysis and explicit theoretical contributions. The gap between these traditions means that many teacher-educators are asked to publish in formats for which they were not trained.

Challenge 2: Time and workload. International research shows that teacher-educators everywhere struggle to combine teaching with research and that lack of time is the most frequently reported barrier to research engagement (Borg, 2010; Tack et al., 2018). In Uzbekistan, the rapid expansion of access to higher education has increased student numbers and teaching loads, which is likely to intensify this tension in pedagogical universities.

Challenge 3: Language and publication barriers. The shift towards publication in international, predominantly English-language journals requires academic English, familiarity with peer review and knowledge of journal selection. Where these competences are limited and publication counts are linked to degrees and promotion, researchers become vulnerable to low-quality and predatory journals. Bibliometric evidence shows that Uzbekistan is among the countries with the highest shares of Scopus-indexed articles in potentially predatory journals (Macháček & Srholec, 2022), a pattern widely associated with indicator-based incentives (Grudniewicz et al., 2019).

Challenge 4: Institutional infrastructure and support. Research on post-Soviet higher education highlights underfunding, limited access to international databases and research tools, and governance structures that have historically limited academic autonomy (Heyneman, 2010; Silova et al., 2007; Ruziev & Burkhanov, 2018). The literature on teacher-educators adds that mentoring, research communities and research support units are decisive for developing research capacity (Murray & Male, 2005; Tack & Vanderlinde, 2014).

3.3 Opportunities created by the reforms (RQ3)

The analysis also identified substantial opportunities. The expansion of academic and financial autonomy allows universities to design their own professional development and incentive systems. The restored PhD/DSc system creates clearer pathways for early-career

researchers. International cooperation through Erasmus+ projects, joint programmes and branch campuses of foreign universities provides access to partners, methods and research networks. Finally, digital resources, open-access publishing and online training make international methodological knowledge more accessible than ever before (UNESCO, 2021). Table 2 integrates these challenges and opportunities by component of scientific and methodological potential.

Table 2. Challenges and opportunities by component of scientific and methodological potential

Component	Main challenge	Main opportunity
Motivational-agentive	Motivation driven by external targets rather than intrinsic interest	Incentive systems linked to quality; recognition of research in career progression
Epistemological-cognitive	Dominance of normative-descriptive research traditions	Exposure to international paradigms through doctoral programmes and partnerships
Methodological-technological	Limited training in empirical, quantitative and qualitative methods	Methods schools, online courses, digital tools and research support units
Reflexive-metacognitive	Weak link between research and teaching practice	Action research and practice-based inquiry in teacher education
Axiological-ethical	Pressure to publish; risk of predatory publishing	Research integrity policies, ethics committees, journal selection guidance
Communicative-impact	Language barriers; low international visibility	Academic writing centres, international co-authorship, open-access publishing

4. Discussion

This study examined how the modernization of scientific and methodological potential in Uzbekistan's higher pedagogical education is conceptualized in policy and which challenges and opportunities it involves. The findings point to a central tension: policy defines modernization mainly through outputs, while teacher-educators are asked to demonstrate capacities that they have not been systematically helped to develop.

The predominance of output indicators in policy documents is consistent with the global influence of rankings and performance metrics on higher education (Hazelkorn, 2015; Marginson, 2016). In post-Soviet systems, where research was historically located outside universities, such indicators provide a clear and measurable direction for reform. However, the findings support concerns raised in the international literature that indicator-driven strategies can produce unintended effects when underlying capacity is weak (Altbach & Salmi, 2011). The bibliometric evidence on predatory publishing in the region (Macháček & Srholec,

2022) suggests that, without parallel investment in methodological and ethical capacity, targets may increase the quantity of publications without improving their quality.

The challenges identified, especially limited time, insufficient methodological training and weak support, closely mirror findings from Western European contexts (Murray & Male, 2005; Tack et al., 2018; Borg, 2010). This similarity suggests that the difficulties facing Uzbek teacher-educators are not only consequences of a post-Soviet legacy but also reflect a structural feature of teacher education worldwide: the dual role of teacher-educators as teachers and researchers is rarely matched by institutional conditions that make both roles possible. At the same time, the Uzbek case has specific features: a strong normative-descriptive research tradition, a rapid expansion of student numbers that increases teaching loads, and language barriers associated with the shift towards English-language publication.

The opportunities identified indicate that the reform environment also contains resources for a different, capacity-oriented approach to modernization. Academic autonomy, in particular, enables institutions to move beyond compliance with national targets towards the design of their own research development strategies, in line with ESG Standard 1.5, which makes institutions responsible for supporting the professional development of their staff. International frameworks such as ResearchComp can serve as reference points for these strategies, provided they are adapted to the specific mission of pedagogical universities, which includes translating research into teaching and school practice.

The findings also have a theoretical implication. They support conceptualizing scientific and methodological potential as an individual-in-context phenomenon rather than a purely individual attribute (Hargreaves & Fullan, 2012). The analysis suggests that what limits the actualization of individual potential is mainly the combination of methodological gaps and unfavourable institutional conditions, rather than a lack of willingness. This explains why reforms that raise expectations without changing working conditions may increase stress and formal compliance rather than genuine research engagement. For post-Soviet systems more broadly, the Uzbek case suggests that the transition from teaching-oriented to research-active pedagogical universities is a long-term cultural change that requires coordinated action at the national, institutional and individual levels.

On this basis, three practical implications are proposed. First, national and institutional indicators should be balanced so that they reward quality, integrity and impact on practice rather than publication counts alone. Second, pedagogical universities should establish systematic programmes for developing scientific and methodological potential, including methods schools, academic writing support, mentoring by experienced researchers and protected research time. Third, research integrity should be institutionalized through ethics committees, transparent journal selection guidance and training, so that the drive for international visibility does not undermine the credibility of national research.

The study has limitations. As a theoretical analysis, it relies on policy documents and published research rather than direct empirical evidence from Uzbek pedagogical universities, and the extent of each challenge may vary between institutions. The document analysis covered national strategic documents and did not examine institutional strategies in detail. Future research should test these conclusions through surveys and interviews with teacher-educators, bibliometric analyses of publication patterns and evaluations of professional development interventions.

5. Conclusion

Uzbekistan's education reforms have created both strong pressure and real opportunities for modernizing the scientific and methodological potential of staff in higher pedagogical education. This study shows that policy frames modernization predominantly through output indicators, while teacher-educators face challenges related to methodological preparation, workload, language and institutional support. The new possibilities created by autonomy, doctoral reform, international cooperation and digital resources provide a foundation for progress. Sustainable modernization, however, requires shifting from a metric-driven to a capacity-oriented approach that develops the full range of motivational, methodological, reflexive, ethical and communicative resources of teacher-educators and creates the institutional conditions in which these resources can be used.

REFERENCES

1. Altbach, P. G., & Salmi, J. (Eds.). (2011). The road to academic excellence: The making of world-class research universities. World Bank.
2. Borg, S. (2010). Language teacher research engagement. Language Teaching, 43(4), 391–429.
3. Bowen, G. A. (2009). Document analysis as a qualitative research method. Qualitative Research Journal, 9(2), 27–40.
4. Decree of the President of the Republic of Uzbekistan No. UP-4958. (2017, February 16). On further improvement of the system of postgraduate education.
5. Decree of the President of the Republic of Uzbekistan No. UP-5847. (2019, October 8). On approval of the Concept for the development of the higher education system of the Republic of Uzbekistan until 2030.
6. Decree of the President of the Republic of Uzbekistan No. UP-60. (2022, January 28). On the Development Strategy of New Uzbekistan for 2022–2026.
7. Decree of the President of the Republic of Uzbekistan No. UP-6097. (2020, October 29). On approval of the Concept for the development of science until 2030.
8. ENQA, ESU, EUA, EURASHE, et al. (2015). Standards and guidelines for quality assurance in the European Higher Education Area (ESG). Brussels.
9. European Commission. (2023). ResearchComp: The European competence framework for researchers. Publications Office of the European Union.
10. Grudniewicz, A., Moher, D., Cobey, K. D., et al. (2019). Predatory journals: No definition, no defence. Nature, 576(7786), 210–212.
11. Hargreaves, A., & Fullan, M. (2012). Professional capital: Transforming teaching in every school. Teachers College Press.
12. Hazelkorn, E. (2015). Rankings and the reshaping of higher education: The battle for world-class excellence (2nd ed.). Palgrave Macmillan.
13. Heyneman, S. P. (2010). A comment on the changes in higher education in the former Soviet Union. European Education, 42(1), 76–87.
14. Huisman, J., Smolentseva, A., & Froumin, I. (Eds.). (2018). 25 years of transformations of higher education systems in post-Soviet countries: Reform and continuity. Palgrave Macmillan.
15. Law of the Republic of Uzbekistan No. ZRU-637. (2020, September 23). On Education.

16. Macháček, V., & Srholec, M. (2022). Predatory publishing in Scopus: Evidence on cross-country differences. Quantitative Science Studies, 3(3), 859–887.
17. Marginson, S. (2016). The worldwide trend to high participation higher education: Dynamics of social stratification in inclusive systems. Higher Education, 72(4), 413–434.
18. Murray, J., & Male, T. (2005). Becoming a teacher educator: Evidence from the field. Teaching and Teacher Education, 21(2), 125–142.
19. Ruziev, K., & Burkhanov, U. (2018). Uzbekistan: Higher education reforms and the changing landscape since independence. In J. Huisman, A. Smolentseva, & I. Froumin (Eds.), 25 years of transformations of higher education systems in post-Soviet countries (pp. 435–459). Palgrave Macmillan.
20. Salmi, J. (2009). The challenge of establishing world-class universities. World Bank.
21. Silova, I. (Ed.). (2011). Globalization on the margins: Education and post-socialist transformations in Central Asia. Information Age Publishing.
22. Silova, I., Johnson, M. S., & Heyneman, S. P. (2007). Education and the crisis of social cohesion in Azerbaijan and Central Asia. Comparative Education Review, 51(2), 159–180.
23. Smolentseva, A. (2017). Where Soviet and neoliberal discourses meet: The transformation of the purposes of higher education in Soviet and post-Soviet Russia. Higher Education, 74(6), 1091–1108.
24. Tack, H., & Vanderlinde, R. (2014). Teacher educators' professional development: Towards a typology of teacher educators' researcherly disposition. British Journal of Educational Studies, 62(3), 297–315.
25. Tack, H., Valcke, M., Rots, I., Struyven, K., & Vanderlinde, R. (2018). Uncovering a hidden professional agenda for teacher educators: A mixed method study on Flemish teacher educators and their professional development. European Journal of Teacher Education, 41(1), 86–104.
26. Torraco, R. J. (2005). Writing integrative literature reviews: Guidelines and examples. Human Resource Development Review, 4(3), 356–367.
27. UNESCO. (2021). UNESCO recommendation on open science. UNESCO.