

EVOLUTION OF THE EDUCATIONAL PARADIGM: DIASPORA AND KNOWLEDGE TRANSFER UNDER THE IMPACT OF ARTIFICIAL INTELLIGENCE

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Abstract: *The analysis addresses the structural reconfiguration of educational systems, highlighting the strategic dimension of diaspora within the process of curricular reform. Under the impact of artificial intelligence, the scientific community abroad constitutes a fundamental vector in the dynamics of knowledge transfer and advanced digital competencies toward the domestic environment. The mechanisms through which external expertise facilitates the integration of best practices and innovative methodologies are evaluated, optimizing the convergence between the foundations of classical pedagogy and contemporary technological imperatives. From this perspective of global interconnectivity, the text formulates strategic benchmarks to transform the phenomenon of brain drain into a bidirectional circuit of shared intelligence, capable of substantiating future national educational policies.*

Keywords: *pedagogical convergence; transnational knowledge transfer; curricular reconfiguration; disruptive educational technologies; global interconnectivity.*

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The context of the educational paradigm transformation

The contemporary transformation of education must be understood against the backdrop of two major and mutually reinforcing processes: the globalization of scientific research and the fast-paced evolution of digital technologies, most notably artificial intelligence (AI). Digitalization has substantially broadened access to information while progressively diminishing the significance of geographical boundaries in educational processes. The emergence of generative AI systems has introduced a further stage in this transformation, in which technology increasingly participates in the acquisition, synthesis, translation, generation, and organization of knowledge.

Alongside technological change, the very understanding of academic mobility is undergoing a profound transformation. The traditional notion of

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“brain drain”¹ conceptualized the migration of researchers and highly skilled professionals primarily as a loss of human capital for their countries of origin. Subsequent approaches have broadened this perspective through concepts such as “brain circulation” and “transnational knowledge networks,” drawing attention to the relationships, collaborations, and flows of knowledge that may persist and evolve beyond the act of migration itself².

From this standpoint, the academic diaspora should not be regarded merely as a dispersed community of specialists living beyond national borders. It may instead constitute a transnational human infrastructure through which knowledge, expertise, and institutional capacity continue to circulate. Researchers in the diaspora can contribute to collaborative research, mentoring, and the development of early-career scholars, thereby facilitating access to international networks and institutional development, without making permanent repatriation a prerequisite for meaningful academic engagement.

According to an OECD report on Romanian emigrants, Romanian nationals constituted the fifth-largest emigrant group residing in OECD countries, accounting for approximately 3% of the total emigrant population in the OECD area in 2015/2016. A comparable number of emigrants originated from Germany and the United Kingdom, each accounting for approximately 3.4 million emigrants. When OECD countries of origin such as Mexico and Poland are excluded, the Romanian diaspora ranked third in size, after those of China and India³.

Against this background, the present article addresses the following research question:

To what extent can the integration of artificial intelligence enhance the role of the academic diaspora as a vector of transnational knowledge circulation and co-production, thereby contributing to the reconfiguration of the contemporary educational paradigm?

The article advances the conceptual hypothesis that AI does not displace the role of the academic diaspora but may instead amplify its capacity to mediate, connect, and exchange expertise, provided that appropriate institutional mechanisms are in place to translate technological connectivity into substantive academic collaboration.

¹ Meyer, J.-B. (2001). Network Approach versus Brain Drain: Lessons from the Diaspora. *International Migration*, 39(5), pp. 91–110.

² Ackers, L. (2005). Moving People and Knowledge: Scientific Mobility in the European Union. *International Migration*, 43(5), 99–131.

³ OECD. (2019). *Talent Abroad: A Review of Romanian Emigrants*. OECD Publishing, Paris. p. 26.

The transition from the traditional educational paradigm to the connective paradigm

The traditional educational paradigm was structured around a relatively stable relationship between the institution, the teacher, the student, and knowledge. Educational institutions served as the principal organizational structures through which knowledge was accessed and transmitted; teachers occupied a central position in its interpretation and dissemination; and students were primarily positioned as recipients of the educational process.

Digitalization has progressively disrupted this configuration. Access to digital libraries, scholarly databases, online courses, collaborative platforms, and open educational resources has significantly reduced the extent to which educational participation depends upon physical proximity to an institution.

Artificial intelligence introduces a further transformation. UNESCO observes that the emergence of AI is reshaping the traditional teacher–student relationship into a teacher–AI–student configuration and consequently requires a reconsideration of teachers’ competencies⁴.

This transformation, however, should not be understood as a technological substitution of the teacher. Quite the contrary: as information becomes increasingly accessible, the distinctly human capacities for evaluation, interpretation, contextualization, critical reasoning, and intellectual judgment acquire greater significance.

The emerging educational paradigm may therefore be understood as a transition from the transmission of knowledge towards its critical management, evaluation, and co-production.

Within this configuration, teachers and researchers do not become less relevant; rather, their roles are redefined. They move from occupying the position of predominantly authoritative sources of information towards becoming facilitators of learning, evaluators of epistemic validity, interpreters of complex information, and active participants in the production of knowledge.

The Romanian academic diaspora as a transnational knowledge network in Artificial Intelligence

Artificial intelligence is a field in which knowledge production takes place within an exceptionally internationalized scientific environment. The mobility of researchers contributes not only to the geographical circulation of expertise but also to the creation of enduring intellectual and institutional connections across academic systems. From this perspective, the academic diaspora should not be understood solely as the outcome of specialists

⁴ Miao, F., & Cukurova, M. (2024). *AI Competency Framework for Teachers*. UNESCO, Paris.

moving from one national environment to another. Researchers living and working abroad may remain active participants in the production and circulation of knowledge through sustained professional and scientific relationships that transcend national boundaries. The concept of *diaspora knowledge networks* captures precisely this transformation of specialist mobility into a relational resource through which knowledge and expertise may remain accessible to the country of origin even in the absence of researchers' physical return⁵.

Within this conceptual framework, the Romanian academic diaspora in AI can be examined as a transnational knowledge network. The mere presence of Romanian researchers in universities and research institutions abroad does not, in itself, warrant the designation of "network." What constitutes a network is the existence of relationships through which these researchers interact with broader scientific communities, including researchers and institutions in Romania. A network emerges where individual mobility is accompanied by sustained collaboration, communication, and knowledge exchange. Meyer and Wattiaux identify several concrete manifestations of such networks, including the transfer of specialized knowledge, joint research projects, training and mentoring, as well as scientific and technological consultancy⁶.

The transnational character of such a network derives from the intersection of multiple academic spaces. A Romanian researcher working in a laboratory or university abroad becomes embedded in the scientific community of that institution while potentially maintaining simultaneous professional relationships with researchers and institutions in Romania. The diaspora should therefore not be conceived as a space external to the Romanian academic system but, rather, as one of the channels through which that system can remain connected to the international scientific environment. Research on computer scientists originating from the post-Soviet space offers a particularly relevant illustration: diasporic networks have been examined through collaborative relationships between researchers, including co-authorship ties, rather than through shared national origin alone⁷.

In AI, this relational dimension is especially significant because knowledge does not circulate exclusively through published scientific findings. It also travels through research methodologies, technical expertise, professional experience, access to scientific communities, tacit knowledge,

⁵ Meyer, J.-B., & Wattiaux, J.-P. (2006). Diaspora Knowledge Networks: Vanishing Doubts and Increasing Evidence. *International Journal on Multicultural Societies*, 8(1), 4–6.

⁶ Meyer and Wattiaux, "Diaspora Knowledge Networks," p. 8

⁷ Irina Antoshchuk, "Colleagues with Benefits: How Diaspora Knowledge Networks Make a Difference to Post-Soviet Scientists' Migration, Research and Career" (PhD diss., University of Amsterdam, 2023), pp. 15–19.

and participation in collaborative projects. A transnational knowledge network can therefore be identified through multiple forms of interaction, including joint publications, collaborative research projects, the supervision and mentoring of early-career researchers, academic mobility, and participation in international research consortia. Such mechanisms transform the relationship between diaspora researchers and their counterparts in Romania from an interpersonal connection into a substantive channel for the circulation and generation of knowledge.

Crucially, this circulation should not be conceived as a unidirectional process. The diaspora does not simply transmit knowledge “from outside” to Romania. Collaborative relationships generate a more complex, bidirectional circulation in which researchers situated within different academic environments contribute reciprocally to knowledge production.

The value of the network therefore lies not in transferring a fixed stock of knowledge but in its capacity to generate new relationships, research projects, intellectual exchanges, and institutional possibilities. In this sense, the notion of a knowledge network is analytically more productive than that of simple knowledge transfer.

Further support for this approach can be found in research on diasporic networks within computer science. Irina Antoshchuk’s study of computer scientists originating from the former Soviet Union and subsequently established in the United Kingdom demonstrates how diasporic relationships can be examined empirically through co-authorship networks and researchers’ positions within those networks. By combining publication analysis, social network analysis, and interviews with researchers, the study makes it possible to observe concretely how diasporic relationships contribute to scientific production⁸.

This approach provides a potentially valuable analytical framework for examining the Romanian AI diaspora. Rather than defining the diaspora exclusively through the criterion of national origin, the network may be identified through the substantive ties connecting researchers and institutions. Co-authorship in AI publications, participation in joint research projects, affiliation with international research consortia, and involvement in mentoring activities may serve as indicators of the existence, density, and intensity of such a network. The academic diaspora can thus be approached not simply as a population but as a structure of relationships through which intellectual resources circulate and new knowledge is generated.

In Romania, there are already institutional developments that point to the relevance of this perspective in the field of AI. During the Romanian Scientific Diaspora 2025 conference, the Romanian Hub for Artificial

⁸ Antoshchuk, "Colleagues with Benefits," pp. 79–86.

Intelligence organized a workshop devoted to the frontiers, challenges, and perspectives of AI, explicitly addressing collaboration between the scientific diaspora and the local academic community, as well as the transfer of knowledge and technology⁹. The convergence of these two dimensions - diaspora engagement and AI development - within a research-oriented institutional framework signals an emerging interest in transforming diasporic connections into sustained forms of scientific collaboration.

The Romanian academic diaspora in AI can therefore be conceptualized through three mutually reinforcing dimensions: connectivity, knowledge creation, and knowledge dissemination. Romanian researchers working abroad are embedded in international research communities, contribute to the advancement of AI knowledge, and, through the relationships they sustain, may connect these communities with researchers and institutions in Romania.

From this perspective, the diaspora is not defined by geographical dispersion alone but by the relationships that transform dispersion into a functioning network. What gives this network its epistemic character is the capacity of its connections to facilitate the circulation of expertise, scientific findings, skills, experience, and opportunities for collaboration. In the context of AI, this perspective enables a conceptual shift from viewing the diaspora primarily as a phenomenon of academic mobility towards understanding it as a transnational infrastructure for knowledge production, circulation, and co-creation.

Strategic directions and opportunities for Romania

For Romania, the intersection between academic diaspora engagement and AI represents a potentially significant strategic opportunity. A forward-looking policy approach could move beyond the exclusive objective of attracting researchers back to the country and instead seek to cultivate a permanent transnational Romanian academic network.

Such an approach could encompass:

- mentoring programmes linking diaspora researchers with doctoral students in Romania;
- joint research projects;
- courses and seminars delivered by researchers based abroad;
- co-supervision of doctoral dissertations;
- thematic research networks;
- digital platforms for sustained academic collaboration;
- joint training programmes focused on the responsible use of AI;
- knowledge co-production initiatives involving Romanian universities and international research institutions.

⁹ Romanian Hub for Artificial Intelligence (HRIA), "HRIA Workshop at Smart Diaspora 2025: Frontiers in Artificial Intelligence: Challenges and Perspectives," November 6, 2025.

Such a strategy would be consistent with broader directions in Romanian research policy aimed at strengthening the circulation of knowledge, expertise, and competencies between researchers working within the country and those based abroad.

Within such a configuration, the diaspora ceases to be merely a demographic category, while AI ceases to be exclusively a technological instrument. Their intersection may instead constitute an important component of a national and transnational knowledge infrastructure.

Insights and Implications

The preceding analysis permits an important intermediate conclusion: the transformation of the educational paradigm cannot be attributed to AI in isolation. Artificial intelligence produces meaningful educational effects only when embedded within an institutional, professional, and epistemic ecosystem capable of giving technological capacities a coherent educational and scientific purpose.

The academic diaspora can provide the human, relational, and international capital required to connect and animate such an ecosystem, while AI can reduce the costs of communication, accelerate access to information, and facilitate selected forms of academic interaction and collaboration.

The relationship between academic diaspora networks and AI can therefore be conceptualized as one of complementarity. The diaspora contributes expertise, experience, professional networks, and social capital, whereas AI provides increasingly sophisticated instruments for information processing, mediation, coordination, and intellectual augmentation.

Educational and research institutions provide the institutional architecture within which these resources can be transformed into sustained academic practices and tangible outcomes.

This perspective suggests a more appropriate understanding of the emerging educational paradigm: not a transition from the teacher to AI, but a transition from the linear transmission of knowledge towards its distributed connection, critical evaluation, and co-production.

Concluding remarks

The evolution of the contemporary educational paradigm must be considered in conjunction with the simultaneous transformation of academic mobility and the technological infrastructures through which knowledge is produced, accessed, and circulated.

The academic diaspora should not be conceptualized as an irreversible loss for the country of origin. Through transnational networks, sustained collaboration, and digitally enabled mobility, researchers abroad

can remain active participants in the circulation and co-production of knowledge.

Artificial intelligence has the potential to amplify these processes by facilitating access to information, communication, coordination, and collaboration. Yet AI cannot substitute for the human, institutional, and epistemic dimensions upon which meaningful research and education ultimately depend.

For Romania, the strategic challenge is therefore to develop a model in which the academic diaspora remains structurally and continuously connected to universities and research institutions within the country, while AI is deployed as an instrument for collaboration, knowledge circulation, and the augmentation of intellectual capacity. In such a model, the objective is no longer confined to the “recovery” of researchers who have left the country. The more ambitious objective is to foster the transnational circulation, connection, and co-production of knowledge.

Such a shift in perspective may become a significant element in the reconfiguration of the educational paradigm within an increasingly interconnected society shaped by both knowledge and artificial intelligence.



BIBLIOGRAPHY

- ACKERS, L. (2005). Moving people and knowledge: Scientific mobility in the European Union. *International Migration*, 43(5), 99–131.
- ANTOSHCHUK, I. (2023). *Colleagues with benefits: How diaspora knowledge networks make a difference to Post-Soviet scientists' migration, research and career* [Doctoral dissertation, University of Amsterdam].
- MEYER, J.-B. (2001). Network approach versus brain drain: Lessons from the diaspora. *International Migration*, 39(5), 91–110.
- MEYER, J.-B., & Wattiaux, J.-P. (2006). Diaspora knowledge networks: Vanishing doubts and increasing evidence. *International Journal on Multicultural Societies*, 8(1), 4–8.
- MIAO, F., & Cukurova, M. (2024). *AI competency framework for teachers*. UNESCO.
- OECD. (2019). *Talent abroad: A review of Romanian emigrants*. OECD Publishing.
- Romanian Hub for Artificial Intelligence (HRIA). (2025, November 6). *HRIA Workshop at Smart Diaspora 2025: Frontiers in Artificial Intelligence: Challenges and Perspectives* [Workshop presentation]. Cluj-Napoca, Romania.

