



From Knowledge Transmission to Human-AI Symbiosis: Global Higher Education Curriculum Restructuring, Proximity Dynamics, and the Rebirth of Educational Research

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Abstract: In the era of global digital transformation, the traditional higher education paradigm centered on knowledge transmission is facing an unprecedented paradigm shift, with the symbiosis between humans and artificial intelligence (Human-AI Symbiosis) becoming a new core orientation of educational development. This paper takes global higher education as the research context, constructs a theoretical framework centered on curriculum restructuring, proximity dynamics, and the rebirth of educational research, and systematically explores how curriculum restructuring in higher education breaks the constraints of the traditional knowledge transmission model, and how multi-dimensional proximity dynamics promotes the formation of Human-AI Symbiosis and drives the innovation of educational research paradigms. It analyzes the interactive mechanism of physical proximity, social proximity, cognitive proximity, and digital proximity in the process of higher education curriculum restructuring, and discusses the practical paths of educational research rebirth from five dimensions: AI integration in higher education, learner development and personalization, curriculum and educational content optimization, teacher role transformation, and educational governance and regulation. The research finds that curriculum restructuring is the core carrier of realizing the shift from knowledge transmission to Human-AI Symbiosis in global higher education; proximity dynamics provides a key driving force for the deep integration of AI and higher education, as well as the collaborative innovation of educational research; the organic combination of the two promotes educational research to move towards a new paradigm that is interdisciplinary, practice-oriented, intelligent, and humanistic. This study enriches the theoretical system of global higher education curriculum reform and educational research paradigm innovation, and provides a theoretical reference and practical guidance for the transformation and upgrading of higher education and educational research in the context of Human-AI Symbiosis.

Keywords: human-AI symbiosis; global higher education; curriculum restructuring; proximity dynamics; educational research rebirth; knowledge transmission

1. Introduction

The rapid development of artificial intelligence technology and the in-depth advancement of global higher education integration have jointly triggered a profound transformation in the educational ecosystem, and the traditional higher education paradigm dominated by knowledge transmission has gradually shown its limitations. For a long time, global higher education has taken the transmission of existing knowledge as the core goal, with a rigid curriculum system, a single teaching model, and a disconnection between theoretical teaching and practical application. This model can no longer adapt to the needs of talent training in the digital age, where the ability to innovate, collaborate, and adapt to technological changes has become the core requirement for talents. Against this background, the concept of Human-AI Symbiosis has emerged, which emphasizes the complementary cooperation between humans and AI, giving play to the advantages of AI in efficient data processing, intelligent guidance, and personalized services, while highlighting the dominant position of humans in critical thinking, emotional communication, and creative innovation. This shift has put forward new requirements for the curriculum restructuring of global higher education and the innovation of educational research paradigms.

2. Integrating AI in Higher Education

The integration of AI in global higher education is the core driving force for realizing the shift from knowledge transmission to Human-AI Symbiosis, and also an important starting point for curriculum restructuring and the rebirth of educational research. Unlike the simple application of AI in basic education, the integration of AI in higher education focuses more on cultivating students' ability to collaborate with AI, innovate on the basis of AI technology, and solve complex practical problems, which is closely related to the goal of higher education talent training.

AI promotes the restructuring of the higher education curriculum system by breaking the disciplinary boundaries and

optimizing the curriculum content. Traditional higher education curricula are divided by disciplines, resulting in fragmented knowledge and difficult to form a comprehensive knowledge system that adapts to the needs of Human-AI Symbiosis. AI technology promotes the integration of interdisciplinary knowledge, and promotes the construction of interdisciplinary courses such as AI + liberal arts, AI + science, and AI + engineering. For example, in the field of business administration, AI technology is integrated into courses such as data analysis, marketing, and enterprise management, enabling students to master the ability to use AI tools to solve practical business problems; in the field of liberal arts, AI technology is used to carry out text analysis, cultural heritage protection, and other research, enriching the teaching content and research methods. This kind of curriculum restructuring not only optimizes the knowledge structure of students but also provides new research topics for educational research, such as the design of interdisciplinary courses under the background of AI integration and the evaluation of teaching effects.

3. Learner Development and Personalization

Learner development is the core goal of global higher education, and personalization is the key direction of curriculum restructuring and the rebirth of educational research in the context of Human-AI Symbiosis. The traditional higher education model centered on knowledge transmission ignores the individual differences in students' learning interests, learning abilities, cognitive characteristics, and career development needs, adopting a "one-size-fits-all" teaching model, which is difficult to cultivate students' independent thinking ability, innovative ability, and adaptability in the digital age. Under the background of Human-AI Symbiosis, curriculum restructuring breaks the constraints of the traditional model, and proximity dynamics promotes the precise matching between educational resources, AI technology, and learner needs, jointly promoting the shift of higher education from knowledge transmission to personalized development, and focusing on the all-round development of learners in the context of human-machine collaboration.

4. Curriculum and Educational Content

Curriculum and educational content are the core carriers of global higher education, and their restructuring is the key to realizing the shift from knowledge transmission to Human-AI Symbiosis, and also an important part of educational research rebirth. The traditional higher education curriculum system is characterized by disciplinary fragmentation, content aging, over-emphasis on theoretical knowledge, and disconnection from practical application and technological development, which can no longer adapt to the needs of talent training in the context of Human-AI Symbiosis. The restructuring of curriculum and educational content in global higher education takes interdisciplinary integration, practical orientation, personalization, and intelligentization as the core, and is driven by proximity dynamics to realize the innovation and upgrading of the curriculum system, providing a content basis for the high-quality development of higher education and the rebirth of educational research.

5. Role of Teachers

The restructuring of global higher education curriculum and the shift from knowledge transmission to Human-AI Symbiosis have triggered a profound transformation in the role of teachers, who have shifted from traditional knowledge imparters to organizers, guides, collaborators, and researchers of learning in the context of human-machine collaboration. Traditional higher education teachers are in the core position of classroom teaching, responsible for imparting fixed theoretical knowledge, with a single role and limited functions, which can no longer adapt to the needs of personalized teaching, interdisciplinary teaching, and human-machine collaborative teaching in the digital age. Educational curriculum restructuring breaks the traditional teaching model and relationship pattern, and proximity dynamics enhances the multi-dimensional interaction between teachers, learners, researchers, AI technology providers, and society, promoting the comprehensive transformation and upgrading of teacher roles in global higher education.

6. Governance and Regulation

Governance and regulation are important institutional guarantees for the curriculum restructuring of global higher education, the realization of Human-AI Symbiosis, and the rebirth of educational research, providing a stable and standardized environment for educational innovation, technological integration, and research development. Traditional higher education governance is dominated by government administrative control, with a single main body, rigid means, and insufficient supervision, which is difficult to adapt to the needs of diversified, intelligent, and globalized higher education development. The restructuring of higher education governance takes multi-subject collaborative governance as the core, and proximity dynamics promotes the interaction and cooperation of governance subjects, realizing the modernization of higher education governance and the standardized development of educational research in the context of Human-AI Symbiosis.

7. Conclusions

This paper takes global higher education as the research context, takes the shift from knowledge transmission to Human-AI Symbiosis as the core background, constructs a theoretical framework of curriculum restructuring, proximity dynamics, and the rebirth of educational research, and systematically analyzes the internal logic and practical paths of the three. The research reveals that curriculum restructuring is the core carrier of realizing the shift from knowledge transmission to Human-AI Symbiosis in global higher education, involving the restructuring of curriculum concepts, curriculum objectives, curriculum content, and curriculum models, breaking the constraints of the traditional higher education paradigm; proximity dynamics is the key driving force, and the dynamic interaction of physical, social, cognitive, and digital proximities promotes the deep integration of AI and higher education, the collaborative innovation of educational subjects, and the effective connection between educational research and practice; the organic combination of curriculum restructuring and proximity dynamics jointly promotes the rebirth of educational research from a traditional paradigm to a new paradigm that is interdisciplinary, practice-oriented, intelligent, and humanistic.

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