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Article

The mutual shaping mechanism between new quality productive forces and educational equity

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Abstract: The relationship between new-quality productivity and educational equity is characterized by close mutual influence and co-evolution. Driven by technological innovation, new-quality productivity is profoundly transforming the economic and social landscape. Educational equity, a crucial component of social justice, is vital for ensuring equal development opportunities for all individuals. The robust growth of new-quality productivity not only optimizes the distribution of educational resources and enhances educational quality but also poses new challenges and demands for equity in education. In turn, the continuous advancement of educational equity provides a solid talent foundation and a conducive environment for innovation to new-quality productivity. These two aspects intertwine and progress together in various domains, including policy systems, cultural values, and educational practices. This interplay highlights the central role of new-quality productivity and educational equity in societal development, while also demonstrating their dynamic and complementary relationship.

Keywords: new quality productive forces; educational equity; inter-constructive relationships; inter-plastic mechanisms

1. Introduction

In the tide of globalization and informatization, New Quality Productive Forces, as the core driving force for economic and social development, are reshaping our production and lifestyle at an unprecedented speed. This concept encompasses frontier technological means such as information technology, artificial intelligence, and big data. By optimizing resource allocation, enhancing production efficiency, and stimulating innovative potential, it leads to profound transformations in social productive forces (Faustin and Kaur, 2023). With the rise of New Quality Productive Forces globally, their far-reaching impact on the field of education, especially on educational equity, has increasingly become a focal point of international academic attention.

Educational equity, as a cornerstone for nurturing the future pillars of society and promoting social development, has always been a universal concern of the international community regarding its degree of achievement. It is not only related to equal opportunities for individual growth but also directly linked to the overall quality of human resources and social stability of a country. In today's era, the primary contradiction of educational equity has shifted from "access to education" to "access to quality education," meaning that improving the quality of education has become an equally important issue as educational equity (Cheng, 2019). This shift not only reflects the new expectations of society towards education but also presents new connotations and goals of educational equity.

Between New Quality Productive Forces and educational equity, there exists a profound interdependent and mutually reinforcing relationship and mechanism of mutual construction and shaping. On the one hand, the rise of New Quality Productive Forces provides new technological means and implementation paths for educational equity. The application of information technology, artificial intelligence, and other technologies enables high-quality educational resources to transcend geographical limitations and benefit more students in remote areas, thereby helping to reduce educational disparities and enhance educational equity (Wen et al., 2023). On the other hand, the achievement of educational equity also lays a solid foundation of talent and an innovative environment for the sustained development of New Quality Productive Forces. The quality and equity of education directly impact a country's talent pool and innovation capability, which further affect the development speed and level of New Quality Productive Forces.

Given the profound connection between New Quality Productive Forces and educational equity, exploring their relationship and mechanism of mutual construction and shaping not only holds significant theoretical value but also has far-reaching guiding significance for practice. This paper aims to deeply analyze the connotations of New Quality Productive Forces and their impact on educational equity, as well as how educational equity achieves upgrades in connotations and goals driven by New Quality Productive Forces. By revealing the intrinsic connections and mechanisms of interaction between the two, this paper expects to provide theoretical support and practical reference for constructing a more equitable, efficient, and sustainable education system.

2. New perspectives on educational equity under the influence of new quality productive forces

2.1. Technological foundation and knowledge integration of new quality productive forces

In the era of informationization and automation, New Quality Productive Forces, with information technology, big data, cloud computing, and artificial intelligence as their solid foundation, have not only reshaped the traditional model of productive forces but also had a profound impact on the educational system. The rapid advancements in information technology have transformed the way knowledge is acquired, disseminated, and applied. The deep integration of cloud computing and big data has brought unprecedented data storage and analysis capabilities to the field of education, laying a solid foundation for implementing personalized education and promoting educational equity (Xu and Xie,2022).

The knowledge architecture of New Quality Productive Forces exhibits new interdisciplinary and integrated trends. The intermingling of disciplines such as computer science, data analysis, machine learning, and automation control has not only driven technological progress but also posed new challenges to the field of education. Modern education must place greater emphasis on the cultivation of information literacy, innovative capabilities, and interdisciplinary thinking to adapt to the development needs of New Quality Productive Forces and further promote the

deepening of educational equity (Cheng, 2019).

It is worth emphasizing that the technological foundation and knowledge architecture of New Quality Productive Forces are subtly transforming the distribution of educational resources. The power of networks and information technology enables high-quality educational resources to transcend geographical and economic barriers, reaching every student more equitably and providing strong technical support for the realization of educational equity.

2.2. New social and economic paradigm driven by new quality productive forces

The rise of New Quality Productive Forces is profoundly reshaping the social and economic structure and triggering a new round of reflection on educational equity. With the continuous development of New Quality Productive Forces, society's demand for talent is also undergoing significant changes, which have a profound impact on the educational system's training objectives and methods, further influencing educational equity.

At the social structure level, New Quality Productive Forces have driven significant changes in the occupational structure. The decline of traditional industries coexists with the emergence of new industries, particularly in the rapid development of fields such as the internet, data analysis, and artificial intelligence (Deng, 2024; Li, 2024). This requires the educational system to keep pace with the times and provide students with knowledge and skills aligned with emerging industries to ensure their competitiveness in the future workplace, thereby maximizing the social value of educational equity.

In terms of economic forms, New Quality Productive Forces have spawned emerging economic models such as the digital economy and the sharing economy, injecting new vitality into economic growth (Wang, 2024). The diverse demand for talent in these emerging models requires the educational system to provide more flexible and diversified training paths. This not only helps enhance students' overall literacy and innovative capabilities but also provides students from different backgrounds with more platforms to showcase their individuality and pursue their dreams, further promoting the deepening of educational equity.

More crucially, the social and economic transformation driven by New Quality Productive Forces has opened up new avenues for advancing educational equity. Through innovative means such as online education and intelligent teaching, high-quality teaching resources can be widely disseminated, enabling more students to access high-level educational resources. This transformation transcends geographical and economic constraints, ensuring that education becomes a universally accessible basic right.

2.3. Development prospects and challenges of new quality productive forces

New Quality Productive Forces are advancing towards intelligence, networking, and greenization, demonstrating broad development prospects. With the rapid advancements in artificial intelligence technology, future productive forces will

achieve unprecedented levels of intelligence and automation (Wang and Liu, 2024). Smart robots, automated production lines, and advanced algorithms will play significant roles in various industries, greatly enhancing production efficiency and accuracy. Meanwhile, driven by advanced communication technologies such as 5G and the Internet of Things, the networking characteristics of productive forces will become increasingly prominent (Dai, 2023). This will enable closer connections between global production, supply chains, and markets, promoting optimal resource allocation and efficient utilization.

However, as New Quality Productive Forces continue to advance, the challenges they face are also becoming increasingly prominent. The primary issue is the rapid speed and extensive impact of technological innovation, which may exacerbate the uneven distribution of educational resources. Although the rapid development of information technology has greatly promoted the sharing and circulation of educational resources, significant disparities in educational investment and teaching staff between different regions and schools remain a problem that cannot be ignored. Such disparities may hinder some students from equally accessing the educational advantages conferred by New Quality Productive Forces, potentially further exacerbating educational inequalities (Zhou and Xu, 2023). Secondly, with the continuous advancement of technology, data security and privacy protection issues have also become increasingly prominent (Xu et al., 2023). In the field of education, how to properly protect students' personal information and learning data, preventing data leakage and misuse, has become an important issue that needs to be addressed urgently in the development of New Quality Productive Forces. These challenges require policy guidance, technological innovation, cooperation, and exchanges to address and resolve.

3. Re-examining educational equity from the perspective of new quality productive forces

3.1. Historical accumulation and philosophical implications of educational equity

Educational equity, as an embodiment of the concept of social equity in the field of education, carries profound historical accumulation and deep philosophical reflections. It is not only related to the equality of individual growth opportunities but also reflects the pursuit of knowledge and wisdom in society, serving as an important measure of civilization progress.

Tracing back through history, educational equity is closely connected to social structure, cultural beliefs, and value orientations. In ancient societies, educational resources were often exclusively enjoyed by privileged classes. This exclusivity not only hindered the development opportunities of the broader populace but also restricted the overall progress of society. However, with the evolution of history, particularly the widespread dissemination of democratic ideas, people gradually recognized that education should be a basic right shared by all citizens, rather than a privilege limited to specific classes.

The concept of educational equity has gradually become a social consensus

through historical changes. The wave of the Industrial Revolution intensified society's demand for knowledge and skills, making the universalization of education and the achievement of educational equity particularly important. Governments worldwide have been committed to promoting the universalization of education, breaking the monopoly of privileged classes over educational resources, and ensuring that a broader range of people can access education. In this process, educational equity has not only become a core objective driving social change but also demonstrated humanity's steadfast pursuit of equality, freedom, and dignity.

From a philosophical perspective, educational equity reflects respect for human dignity and the maintenance of individual development rights. It acknowledges and respects everyone's uniqueness and potential for development, insisting that everyone should enjoy equal educational opportunities. This is not only an inherent need for individual comprehensive development but also a necessary condition for achieving social equity and justice. The idea of educational equity highlights the importance of knowledge, the central position of talent cultivation, and a profound concern for social harmony and sustainable development.

Furthermore, educational equity is a lofty tribute to human wisdom and creativity. Education is not merely a one-way process of knowledge transmission but also a cradle for enlightening wisdom and nurturing creativity. When educational equity is truly implemented, everyone will have the opportunity to think freely and innovate bravely under the nourishment of education, thereby injecting continuous vitality and creativity into society and driving the sustained prosperity and progress of human civilization (Shan and Li, 2019).

Additionally, educational equity plays a pivotal role in maintaining social stability and promoting harmonious development. If the distribution of educational resources is unfair, leading to certain groups being deprived of educational opportunities, it will exacerbate social inequality and potential conflicts. Conversely, achieving educational equity can ensure that everyone has equal development opportunities, laying a solid foundation for social harmony and stability (Shi, 2008).

3.2. The current situation and challenges of educational equity in contemporary society

In today's society, educational equity has transitioned from theory to practice, becoming an important yardstick for measuring social justice and equality. However, upon deeper analysis of the current state of educational equity, it is evident that it still faces numerous severe challenges. These challenges are closely linked to the rapid development of New Quality Productive Forces, jointly revealing the complexity of educational equity issues.

Firstly, the issue of resource reallocation brought by New Quality Productive Forces needs urgent attention. Although the widespread application of information technology and big data should theoretically promote the equitable distribution of educational resources, the reality is that the beneficiaries of new technologies are mainly concentrated in resource-rich regions and schools. For example, while online education platforms provide possibilities for resource sharing, the uneven distribution of network infrastructure exacerbates the existence of the digital divide.

In remote or impoverished areas, due to incomplete network coverage or lack of equipment, students struggle to access educational resources of the same quality as those available to urban students.

Secondly, the interaction between socioeconomic status and New Quality Productive Forces has a profound impact on educational equity. The development of New Quality Productive Forces has, to some extent, amplified the influence of socioeconomic status on educational equity. High-income families are more likely to acquire and utilize educational resources provided by new technologies, such as enjoying online private tutoring services, while low-income families may lose these opportunities due to economic pressures (Sun and Fu, 2020). This positive correlation between socioeconomic status and technological utilization capability further exacerbates the phenomenon of educational inequality.

Furthermore, the issue of adaptability of educational policies in the context of New Quality Productive Forces is also increasingly prominent. In the face of the rapid development of New Quality Productive Forces, the formulation and implementation of educational policies often struggle to keep pace. Policy makers need time to understand and assess the profound impact of new technologies on the field of education, which leads to a disconnect between policy and reality (Tømte, 2011). Meanwhile, with the continuous advancement of technology, the emergence of new technologies brings unprecedented challenges and complexity to policy implementation. Nowadays, how to ensure the broad applicability and effectiveness of policies has become a new challenge we face.

Additionally, the rise of New Quality Productive Forces has the potential to make cultural and gender differences more pronounced. While New Quality Productive Forces open up new avenues for personalized education, they may also inadvertently exacerbate educational inequality due to cultural and gender differences. For instance, students from certain cultural backgrounds may more smoothly integrate into online learning modes, while students from other cultural backgrounds may feel confused and struggle to adapt. At the same time, driven by New Quality Productive Forces, gender differences in some aspects of the technology sector may become more prominent, and the issue of gender imbalance persists with the risk of worsening.

Lastly, we must also pay attention to the impact of New Quality Productive Forces on the quality and evaluation system of education. The widespread application of big data and artificial intelligence enables us to more accurately track and analyze students' learning performance. However, this also brings new challenges: How do we ensure that these advanced technologies do not exacerbate biases and inequalities in educational assessment? How do we find a balance between unified testing standards and personalized assessment? These issues urgently require our deep exploration and response (Long, 2021).

4. The interrelationship between new quality productive forces and educational equity

Through a profound analysis of New Quality Productive Forces from the perspective of educational equity and a comprehensive examination of their

profound impact on educational equity, we can clearly perceive a complex and crucial mutual construction and promotion relationship between the two. This relationship is embodied not only in the reintegration and redistribution of educational resources by New Quality Productive Forces but also in the promotion and guidance of New Quality Productive Forces by educational equity. In the continuous development of society, they interdepend and mutually promote, together forming a tight collaborative development system.

4.1. Technological innovation leading to the reintegration of educational resources

New Quality Productive Forces, with their unique technological charm and innovation drive, are gradually changing the traditional distribution pattern of educational resources. In the past, due to constraints from geography, economy, society, and other multiple factors, there was an imbalance in the distribution of educational resources, which was particularly pronounced between urban and rural areas, as well as between developed and less developed regions. This unequal resource distribution not only exacerbated educational inequity but also severely limited the learning opportunities and growth space for a broad range of students. However, with the vigorous emergence of New Quality Productive Forces, a trend of reintegration and redistribution of educational resources has emerged.

Firstly, New Quality Productive Forces have broken the constraints of geographical space and promoted the cross-regional sharing of educational resources. The application of cutting-edge technologies such as cloud computing and big data has greatly accelerated the pace of educational informatization. New educational models such as online education platforms and smart classrooms have emerged, providing a richer and more diverse range of learning resources for students (Yu et al., 2016). These high-quality educational resources are no longer restricted by geography but can reach a broader student population. Whether urban students or rural children, as long as they have internet access, they can easily access high-quality educational content that was previously difficult to obtain.

Secondly, New Quality Productive Forces have enhanced the efficiency and precision of educational resource allocation. Traditional methods of educational resource allocation were often accompanied by resource waste and inefficiency. However, New Quality Productive Forces, leveraging intelligent management tools and data analysis techniques, have significantly improved the precision and efficiency of educational resource allocation. Educational authorities, through big data analysis, can more accurately grasp the actual educational needs of different regions and schools, thereby implementing more precise resource allocation strategies. This precise resource allocation approach not only effectively enhances the utilization efficiency of educational resources but also helps to reduce the educational gap between different regions and schools, further promoting the realization of educational equity (Wang, 2021).

Furthermore, New Quality Productive Forces have stimulated innovative applications of educational resources. With the rapid development of frontier technologies such as artificial intelligence and virtual reality, the field of education is

ushering in unprecedented innovation opportunities. These advanced technologies bring more intuitive and vivid learning experiences to students, making the application of educational resources more diversified and personalized. For example, through virtual reality technology, students can immersively experience various historical scenes and scientific experiments. This immersive learning approach will undoubtedly greatly enhance students' interest in learning and their learning outcomes.

4.2. The profound impact of educational equity on new quality productive forces

There exists a profound complementary and mutually reinforcing relationship between educational equity and new quality productive forces, together constructing a grand ecosystem. This system not only promotes the comprehensive development of individuals but also injects inexhaustible vitality into the sustained prosperity of the socio-economic landscape at the macro level. New quality productive forces empower educational equity with advanced educational tools and resources, while educational equity, by nurturing future-oriented talents, provides a solid foundation for the leap and innovation of new quality productive forces. This co-evolutionary interaction forms a benign and vigorous cycle, where every advancement in educational equity significantly propels the overall societal innovation capacity and productivity development.

Firstly, building a robust talent foundation is the core of this interactive relationship. Educational equity offers nondiscriminatory learning opportunities, enabling all talents to excel in the ever-changing work environment and market demands. It eliminates economic and social background barriers, allowing every student to access high-quality educational resources and fully unleash their potential. This approach not only cultivates talents broadly and fairly but also injects rich and diverse talent into new quality productive forces, equipped with forward-thinking mindset, critical analytical skills, and exceptional problem-solving abilities.

Secondly, educational equity grants students' access to the forefront of technology, igniting their curiosity and exploratory spirit. The popularization and application of technology not only accelerate technology diffusion but also enhance the technological literacy of the entire society at the macro level. In particular, the universalization of basic and higher education has significantly improved the technological literacy of the population, nurturing a large number of outstanding individuals capable of leading technological development (Xiao and Xie, 2022). For instance, in the field of information technology, educational equity has enabled more students to master cutting-edge skills such as programming, data analysis, and artificial intelligence, which are pivotal in driving the development of various industries in modern society.

Furthermore, the diversity and inclusivity advocated by educational equity contribute to fostering an open, innovative, and failure-tolerant social atmosphere. In such an environment, both teachers and students can freely pursue new ideas and experiment with new methods. It breaks down inherent social strata, creating equal advancement pathways for people from different backgrounds and thereby

promoting social mobility and multicultural integration (Chen, 2020). This atmosphere holds immeasurable value for the development of new quality productive forces, as it encourages individuals to bravely innovate, challenge traditions, and creates a continuously innovative and vibrant ecological environment for enterprises and organizations.

Lastly, from a macro perspective, educational equity, by optimizing the allocation and flow of social resources, injects continuous vitality into the development of new quality productive forces. It not only opens the door to growth for individuals but also brings a steady stream of new ideas and problem-solving pathways to society. Driven by educational equity, social resources are utilized more efficiently, leading to rapid economic growth and overall improvement in social welfare. This precise resource allocation not only provides impetus for the vigorous development of new quality productive forces but also lays a solid foundation for the comprehensive progress of society.

4.3. Synergy between new quality productive forces and educational equity

4.3.1. High integration of talent cultivation and social demand

Educational equity, as a crucial aspect of social equity, emphasizes ensuring that everyone has equal access to educational opportunities based on their abilities and aspirations. The practice of this concept lays the foundation for building an open and inclusive society, enabling individuals from diverse backgrounds to realize their self-worth and social mobility through education. This not only optimizes the allocation of human resources but also facilitates a tight connection between educational output and market demand.

With its unique technological foundation and innovation-oriented nature, New Quality Productive Forces pose more diversified and specialized demands on talent. This requires the educational system to not only impart systematic professional knowledge but also focus on stimulating students' innovative thinking and complex problem-solving abilities. The implementation of educational equity provides a robust talent pool for this demand. Through equal educational opportunities, society can discover and cultivate diversified talent resources, which will become the core force driving the development of New Quality Productive Forces.

Taking the technology sector as an example, with the rapid advancements in high-end technologies, particularly driven by frontier technologies such as artificial intelligence and big data, the demand for highly professional talent has surged. The swift development in these fields has not only created new career opportunities but also posed new challenges to the educational system, namely, how to cultivate professionals who can adapt to and lead these changes. The effective practice of educational equity enables more students with potential and talent to receive high-quality professional education (Wang, 2018), thereby satisfying the urgent demand for professionals in New Quality Productive Forces.

4.3.2. Harmonious unity between social justice and sustained economic development

Educational equity plays a pivotal role in rectifying the unequal allocation of

educational resources due to socioeconomic disparities. By providing equal educational opportunities for everyone, educational equity becomes a key factor in shaping a more harmonious society where individuals can achieve their due accomplishments based on their talents and efforts. Educational equity ensures that students from different social backgrounds can enjoy equal educational rights and interests, laying a solid foundation for the realization of social justice and the vigorous development of the economy. Such equal educational opportunities not only promote overall social progress but also provide a stable support for economic diversification and innovation-driven development (Zou et al., 2019).

Furthermore, educational equity adds new impetus to steady economic growth. By educating and cultivating talent with innovative thinking and practical abilities, educational equity provides a continuous source of motivation for economic structural adjustment and innovation progress. The cultivation and development of New Quality Productive Forces require broad social participation and a sustained innovative spirit, and educational equity is an important pathway to fostering such a participatory consciousness and innovative capacity. It not only stimulates society's innovative potential but also promotes cooperation and exchange among social members, playing a crucial role in advancing the development of New Quality Productive Forces.

4.3.3. Enhancement of innovation capability and comprehensive strengthening of national competitiveness

Educational equity plays an irreplaceable role in stimulating individual innovation potential and cultivating innovative talent. A fair educational environment can provide a platform for everyone to showcase their talents and pursue their interests, which is crucial for cultivating innovative talent adapted to a rapidly changing world. Providing equal educational opportunities ensures that everyone can fully tap into their potential and interests, thereby nurturing a large number of new-type talent with innovative thinking and problem-solving abilities. This talent will surely become the core force leading social progress and technological innovation, and their innovative ideas and practical abilities are invaluable assets indispensable for social development.

At the same time, it cannot be overlooked that this innovation capability is the primary driving force for advancing the development of New Quality Productive Forces and a core element for enhancing national competitiveness. The innovation capability possessed by a country has a decisive impact on its position and competitiveness in the global economic landscape. Precisely because of this, cultivating and sustaining excellent innovation capability has become an indispensable part of national strategic development. In today's era of deepening globalization, competition among countries has gradually evolved into a competition of innovation capability. The level of innovation capability is directly related to a country's status and influence in the global economy.

The mutual promotion between educational equity and New Quality Productive Forces is significant for enhancing the overall innovation capability of a country. Educational equity can provide the necessary talent support for the development of New Quality Productive Forces, while the advancement of New Quality Productive

Forces can create more resources and opportunities for educational equity. The two complement each other, jointly driving the enhancement and progress of national innovation capability. By vigorously cultivating talent with innovative spirit and practical abilities and accelerating the pace of New Quality Productive Forces development, a country will be able to occupy a more advantageous position and achieve greater success in fierce international competition. This outstanding talent and their innovative achievements will directly enhance the country's international competitiveness and overall national strength, making significant contributions to realizing the country's long-term development and prosperity.

5. Mutual shaping mechanism between new quality productive forces and educational equity

An exploration of the intricate and nuanced mutual shaping mechanism between New Quality Productive Forces and educational equity gradually reveals its complexity as it manifests across policy and institutional levels, cultural and value dimensions, and permeates through educational practices and technological innovations. These dimensions collectively construct a dynamic and interactive framework that promotes the mutual enhancement and common advancement of New Quality Productive Forces and educational equity.

5.1. Mutual shaping at the policy and institutional level

In today's society, policies and institutions play a pivotal role in driving New Quality Productive Forces and fostering educational equity. Through carefully designed industrial policies, educational policies, and technological innovation policies, governments not only provide a strong impetus for the vigorous development of New Quality Productive Forces but also lay a solid foundation for achieving educational equity.

Firstly, the orientation of industrial policies has a profound impact on New Quality Productive Forces. In the new economic era, New Quality Productive Forces, centered on technological innovation, are characterized by knowledge intensity and advanced technology. Through a series of strategic industrial policies such as fiscal incentives, tax reductions and exemptions, and funding for technological innovation, governments create a favorable external environment for the development of New Quality Productive Forces. These policies not only reduce operational costs for enterprises but also importantly stimulate the innovative vitality of market entities, driving the rapid growth of emerging industries. The robust development of emerging industries not only promotes the optimization and integration of the industrial chain but also provides a solid foundation for the further maturation and expansion of New Quality Productive Forces (Yang,2018).

Simultaneously, industrial policies play a non-negligible positive role in advancing educational equity. By enhancing the attractiveness of specific industries, governments create more diverse career choices and growth opportunities for students from various backgrounds. Such strategic investments and support measures not only elevate the employment appeal and salary standards of emerging industries but also forge a more advantageous career advancement path for numerous

employees. This approach plays a crucial role in balancing employment markets across different professional domains, helping to alleviate employment competition pressure in some popular industries, thereby ensuring that every student, regardless of their socioeconomic status, can enjoy equal employment opportunities and extensive room for career advancement.

Secondly, the role of educational policies in constructing the framework of educational equity cannot be overlooked. In pursuit of educational equity, governments leverage diversified educational policy tools such as the promotion of compulsory education systems, the establishment of scholarships, and the provision of student loans, striving to eliminate inequalities in educational opportunities. The implementation of these policies enables every student to have access to high-quality education without being constrained by economic circumstances (Xue et al., 2019). More importantly, educational policies also provide a steady stream of talent support for the development of New Quality Productive Forces by optimizing the allocation of educational resources and enhancing the quality of educational services. The emergence of these high-quality talents not only drives the vigorous development of New Quality Productive Forces but also injects new vitality into the overall progress of society.

Furthermore, technological innovation policies also have a significant incentive effect in promoting New Quality Productive Forces and educational equity. By providing research funds, constructing research platforms, and advocating for deep integration of industry, academia, and research, governments create a vibrant ecological environment for technological innovation. The implementation of these policies greatly stimulates the innovative enthusiasm of researchers and promotes the effective transformation and wide application of scientific research achievements (Gong, 2022). Additionally, technological innovation policies further promote the realization of educational equity by enhancing the overall attractiveness of the technology industry and providing broader career development prospects for students.

5.2. Mutual shaping at the cultural and value dimension

With cultural evolution and changing times, educational concepts are undergoing profound transformations. The traditional education model focused on knowledge infusion is gradually making way for new ideas emphasizing students' comprehensive qualities and innovative capabilities. This shift is closely linked to the rise of New Quality Productive Forces, as there is an increasing demand in society for talents with forward-looking vision and practical problem-solving abilities. The renewal of educational concepts not only drives the educational system to focus more on students personalized and diversified development but also provides sustained innovative impetus for New Quality Productive Forces. Meanwhile, this transformation inadvertently promotes the progress of educational equity, enabling every student to obtain opportunities for personalized development based on their own characteristics and interests, thereby significantly enhancing the fairness and inclusivity of education (Lu, 2017).

A cultural environment that encourages innovation and exploration is crucial for

stimulating New Quality Productive Forces. In such an atmosphere, people dare to challenge traditions and actively practice new ideas, thereby driving continuous progress in technology and industries. The prosperity of an innovative culture is closely tied to education, which serves as important soil for nurturing innovative consciousness and practical skills, providing continuous talent support for the vigorous development of an innovative culture. Meanwhile, the rise of an innovative culture is also transforming the educational ecology, offering a broad stage for unleashing students' creativity and imagination, further promoting educational equity.

The sociocultural environment plays a pivotal guiding role in the allocation of educational resources. In a society that values innovation and talent cultivation, governments are more inclined to invest quality resources in education, particularly in basic education and vocational education. This not only elevates the overall level of educational services but also lays a solid talent foundation for the growth of New Quality Productive Forces (Zhu and Zhang, 2020). Simultaneously, the fair allocation of educational resources inadvertently propels the process of educational equity, narrowing the educational gap between different social groups.

Deep-level transformations in the sociocultural environment are leading to shifts in people's values and exerting a profound impact on New Quality Productive Forces and educational equity. The emphasis on personalized career paths, the stimulation of innovation and creativity, and the advocacy of lifelong learning are specific manifestations of this transformation. New values believe that educational equity is the premise for realizing individual potential, thus driving reforms in the educational system aimed at providing equal educational opportunities for everyone. Meanwhile, the establishment of a diversified evaluation system and the improvement of social support systems provide a solid foundation for individuals to achieve their career goals. These changes not only drive the overall progress of society but also contribute to environmental sustainability.

5.3. Mutual shaping at the educational practice and technological innovation level

With the rapid development of information technology, educational practice is deeply integrating with technology, jointly shaping a new educational ecology. This integration not only transforms traditional teaching methods and means but also has a profound impact on the development of New Quality Productive Forces.

In terms of teaching methods and means, the emergence of intelligent teaching systems, leveraging advanced data analysis and adaptive learning technologies, provides personalized learning paths for students. This innovation not only improves teaching efficiency but also inadvertently promotes educational equity, enabling every student to access learning resources tailored to their own needs (Zhang et al., 2021). Furthermore, the introduction of virtual reality (VR) and augmented reality (AR) technologies makes abstract and complex knowledge intuitive and easy to understand, greatly enhancing students' learning interest and effectiveness. This transformation in teaching methods essentially cultivates new-era talents with innovative thinking and problem-solving abilities, thereby indirectly driving the

development of New Quality Productive Forces.

The rise of online education platforms breaks the spatiotemporal constraints of education, enabling wide sharing of quality educational resources. This innovation not only increases the prevalence of education but also provides more learning opportunities for students who are disadvantaged in the traditional educational system, further promoting educational equity (Huang et al., 2021). Simultaneously, the diversified learning modes offered by online education platforms also cultivate students' autonomous learning abilities, innovative spirit, and team collaboration capabilities in a subtle manner, all of which are key qualities required by New Quality Productive Forces.

Innovation in educational evaluation and feedback mechanisms is also an important manifestation of the integration of educational practice and technology. With the diversification of societal talent demands, the educational evaluation system is gradually reforming. The introduction of comprehensive quality evaluation and process evaluation makes evaluations more comprehensive and diversified. The application of intelligent assessment systems makes educational feedback prompter and more precise, helping students promptly understand their own learning status and make adjustments. The renovation of this evaluation and feedback mechanism not only contributes to students' personalized development but also holds great significance for cultivating talents that meet the demands of New Quality Productive Forces (Yu, 2022).

Lastly, cross-boundary integration and the exploration of innovative educational models are becoming important trends in educational development. Through collaboration with technology enterprises, educational institutions can develop more advanced teaching tools and curriculum resources, providing students with industry-connected learning experiences. Meanwhile, technology-integrated learning environments, flexible and diverse teaching methods, and the integration of innovation and entrepreneurship education are all laying the foundation for cultivating innovative talents needed in the new era.

6. Symbiotic strategies for new quality productive forces and educational equity

In the context of the new era, the intrinsic connection between New Quality Productive Forces and educational equity has become increasingly tight, with both complementing each other and jointly driving social progress and development. To delve into the synergistic relationship between the two, it is necessary to examine their respective development trends from a macro perspective and seek effective integration points to achieve the strategic goal of mutual benefit and common prosperity.

6.1. Constructing an ecosystem for symbiotic development

To promote the symbiotic development of New Quality Productive Forces and educational equity, a more comprehensive and profound ecosystem needs to be established. This system encompasses not only technology, teaching, and collaboration but also considers policy, funding, and socio-cultural factors.

Firstly, optimizing the allocation of educational resources driven by technology is a crucial means to achieve educational equity. With the development of new technologies such as big data and cloud computing, educational needs can be analyzed more precisely, enabling scientific resource allocation. For instance, big data analysis can be utilized to conduct thorough research on the educational needs of different regions and groups, providing robust data support for policymakers to ensure that educational resources are allocated more equitably across all corners (Zhang, 2018).

Secondly, the widespread application of intelligent teaching systems is significant for enhancing teaching efficiency and quality. These systems can provide personalized teaching plans based on students' individual differences and learning progress (Liu, 2020). Through intelligent learning paths and resource recommendations, each student can receive the most suitable education, thereby improving overall teaching quality. Simultaneously, intelligent teaching systems provide teachers with comprehensive student learning data, helping them better understand students' learning status and adjust teaching strategies in a timely manner to meet the needs of different students.

Furthermore, cross-sector collaboration has injected more innovative elements and vitality into the education sector. The development of New Quality Productive Forces has promoted deep integration between the education industry and other sectors, providing ample space for educational innovation. Through close collaboration with technology, culture, arts, and other industries, more cutting-edge technological equipment and teaching methods can be introduced (Yang and Zhao, 2021), offering students richer and more diverse learning resources and cultural experiences. This cross-sector collaboration not only helps cultivate students' innovative thinking and comprehensive literacy but also promotes the diversification and modernization of education.

Additionally, the construction of a shared education cloud platform provides strong support for the sharing and collaboration of educational resources. The application of cloud computing technology enables high-quality educational resources to transcend spatiotemporal constraints and benefit a broader population. Through the shared education cloud platform, educational resources from different regions and schools can be interconnected, jointly promoting the enhancement of education and teaching standards. At the same time, this platform also provides a convenient channel for teacher communication and collaboration, contributing to the formation of educational synergy and collectively promoting students' comprehensive development.

However, to achieve the synergistic development strategy of New Quality Productive Forces and educational equity, relying solely on efforts in technology, teaching, and collaboration is far from sufficient. Comprehensive consideration must also be given to policy, funding, and socio-cultural aspects. For example, the government should increase investment in education to ensure that educational resources are allocated reasonably and should also promote educational reform and innovation to adapt to the development needs of the new era. Furthermore, all sectors of society should actively participate in education to jointly create a new environment conducive to educational equity and development.

6.2. Constructing a future-oriented education and innovation policy system

With the continuous development of New Quality Productive Forces, the education sector is facing unprecedented challenges and opportunities. To respond to these changes and promote the sustained progress of education, it is necessary to examine and formulate forward-looking education and innovation policies from a macro perspective. These policies need to focus not only on current educational needs but also anticipate future development trends to ensure the flexibility and sustainability of the education system.

Today, with rapid technological advancements, educational technology innovation has become the core driving force for educational development. Therefore, emphasis should be placed on increasing technology investment and encouraging enterprises, higher education institutions, and research institutions to explore the research and development of educational technology. By establishing special funds and implementing preferential tax policies, the economic burden of innovation can be effectively reduced, thereby accelerating the popularization and application of educational technology. At the same time, to protect the legitimate rights and interests of innovators, a sound intellectual property protection mechanism needs to be established to ensure that innovation achievements are respected and protected, thereby creating a favorable innovation environment and stimulating the innovation enthusiasm of educators and technology personnel.

The rational allocation of educational resources is a crucial guarantee for achieving educational equity. With the aid of advanced technologies such as big data, more precise planning and allocation of educational resources nationwide can be achieved. Especially for the shortage of educational resources in remote and impoverished areas, innovative educational methods such as online education should be utilized to supplement resources effectively and promptly. Furthermore, strengthening education collaboration and cooperation between urban and rural areas as well as different regions is also a key way to promote the sharing and complementary advantages of educational resources. Through these measures, the regional educational gap can be gradually narrowed, promoting the balanced development of the education system (Du, 2016).

With the vigorous development of New Quality Productive Forces, the traditional education system has become difficult to fully adapt to the needs of the new era. Therefore, it is necessary to guide the education system towards a more flexible and diversified direction to better stimulate students' creative potential and innovative spirit. Specifically, a comprehensive vocational education and lifelong education system should be constructed to provide diversified learning paths and development opportunities for different learners. This can not only meet society's demand for diversified talents but also effectively promote the deep integration of education and the economy.

Teachers play a pivotal role in educational activities, and their professional literacy and educational skills are crucial for improving education quality. To achieve the grand goal of educational modernization and building an education power, great importance must be attached to the construction of the teaching staff.

For example, “China’s Education Modernization 2035” clearly states that building a high-quality, professional, and innovative teaching staff is an important cornerstone for achieving this goal (Li and Pie, 2020). Therefore, further efforts should be made to enhance teacher training, comprehensively improving teachers’ professional literacy and educational skills through systematic and targeted training programs. At the same time, teachers should be actively guided to update their educational concepts, helping them better adapt to the needs of education in the new era and ensuring that the education system possesses continuous innovation vitality and development potential.

7. Conclusion

The close relationship between New Quality Productive Forces and educational equity reveals the inherent synergistic mechanism between technology and education. This synergy not only serves as the core driving force for social progress but also highlights the significant role of technological advancements in promoting social equity and justice. The effective development and application of technological innovations have successfully broken through the shackles of traditional education, opening up new avenues for substantial improvements in educational equity. At the same time, it has injected abundant human and knowledge resources into the vigorous development of China’s New Quality Productive Forces. This dynamic and tight interactive process not only unveils emerging trends in social development but also contributes unique insights to exploring harmonious paths of social progress. Furthermore, technological innovations have transcended the realm of merely enhancing production efficiency; they are gradually evolving into a powerful driving force for promoting social equity and justice. Educational equity, as an indispensable component of social justice, has profound implications for personal growth and social development. Integrating technological innovations with educational equity and ensuring that technological achievements benefit all levels extensively is an essential aspect of building a more equitable, prosperous, and harmonious society. Looking ahead, we are confident that under a development model led by technology and grounded in the value of educational equity, we can jointly create a better future society.

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