Report 2020 on Frontier and Hot Issues of *Educational Research of China*

Editorial Department of Educational Research

The year 2020 was a year of great significance, as many endeavors were in a final push and new plans kicked off. It was a year where established projects were to be followed and new developments to be handled. Educational reform and development and building on the completion of phased tasks, started a new journey to a high-quality educational system. Research on educational theories, based on economic and social transformation, explored the major issues and frontline projects in education in-depth and contributed to the accumulation of educational knowledge.

1 From Online Education to Mixed Education

With the first online course emerging in 1981, online education is not something new. However, at the beginning of 2020, online education was again applied and inspected at a large-scale in human society. Thus, online education embraced the perfect opportunity to prove itself. The educational mode quietly changed; mixed education, combining online and offline education became an important change in education.

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1.1 Online Education Ensured That Courses Are Continued While Schools Were Closed

The sudden outbreak of the COVID-19 pandemic has impacted all aspects of human life and profoundly changed the world and life. Faced with the sudden disaster, "educational experts have been predicting the future of learning, and it comes all of a sudden (Wang and Minjuan 2020)." At the urgency of moment when the educational system was at the risk of being suspended, online education rose to the challenge and helped continue courses, despite schools closing. The National Online Platform of Primary and Secondary Schools Network was launched as an emergency response and played a strategic role (Yang & Zhuzhu, 2020). The super-large-scale online teaching implemented by higher education institutions stood the test of the pandemic and became a solid measure in providing quality teaching, as effective as offline courses (Han, 2020a). Amid this major public health contingency, online education has achieved many firsts in China's education and teaching practices, for example, the first online teaching program covering all the students of all educational stages and in all types of schools, the first online second-round postgraduate entrance examination, the first online oral defense of graduation dissertation, the first large-scale online examinations, etc. (Hu, 2020a). It is fair to say that a large-scale experiment in online education has opened a new page of history for human education (Guo, 2020). It has provided unprecedented experimental opportunities for schools to carry out intelligent education and accumulate the valuable experience of organizing large-scale online education activities in all aspects, including integrating educational resources, live streaming and recording of courses, internet and information technology support, organizing and managing students, and psychological education (Fan, 2020a). The underpinning role of online education during the pandemic cannot be overemphasized.

1.2 Calm Thinking Behind Practice in Full Swing

At the same time, researchers also calmly reviewed the practice in full swings in two aspects. One is to confront practice issues, and the other is to inspect the theoretical foundation. Regarding the first aspect, despite its enormous potential, online education is faced with huge challenges from students, teachers and its content (Yang & Lei, 2020). For instance, surveys show that online teaching gained less satisfaction than offline teaching, and teachers and students had little interest in continuously using online teaching (Qin et al., 2020). Furthermore, many issues have to be addressed. For example, an effective management system has to be established; teachers and students have insufficient understanding of online education and teaching; the design and implementation of online courses have to be improved; there are not enough resources; teachers do not know the features of online teaching well; the teaching

method does not match the students' information literacy; the development of information infrastructure and facility is imbalanced in general; the overall quality of online education has to be improved (Hu, 2020a). Based on the review of theory, connectivism has become a new theoretical foundation for online education. With an exception for traditional learning theories and collaborative learning theory, it has been one of the teaching theories widely applied to online education (Yang & Lei, 2020).

Some studies responded to major doubts over online education in a relatively systematic way, such as how to view shortcomings of online education, how to evaluate the quality of online education, and whether adaptive learning, a supposition of online education, is valid. They believe we should admit the shortcomings of online education, but we also should avoid falling into the Socratic Trap when we reflect on them. The quasi-experimental research paradigm has limitations when evaluating the quality and effect of online education. Online education is designed based on the reconstruction of the "teaching unit" instead of learning style preference. The future of online education development lies in big data. Such methodology, with both realistic observations and theoretical support, deserves approval.

1.3 Moving Toward the New form of Mixed Education

The opposite of online education is offline education. The discussion on online education is naturally linked with offline education and the relationship between them. Some studies show that it is necessary to correctly identify the dialectical relationship between online teaching and offline teaching and to fully recognize that there is no essential difference between them. Online education does not change the essence of online teaching, and pure online learning does not exist. Online education cannot handle all the issues. Therefore, a great number of learning activities still need to be carried out offline (Li & Huayang, 2020). This is a knowledge supposition that a mixed mode is possible. In fact, online education and offline education were adopted from time to time during the pandemic. This is objectively a normality. The notion of mixed education was created to balance online and offline education and leverage their strengths. This notion involves two ways of thinking. The first starts from the problems of online education, maintaining that the difficulty of applying online education will promote the shift of educational technology from a communication based paradigm on tool-thinking to a social-cultural paradigm based on relation-thinking. It promotes the physical and mental development of learners by building open learning space with mixed learning (Wu, 2020). The second is to address the shortcomings of offline education. With the notion of mixed education, it aims to achieve effective teaching and learning by combining the strengths of the traditional teaching approach and online learning, thus fully mixing learning environments, learning resources and learning methods (Han, 2020a). Or, alternatively, offline teaching should keep up with online teaching, and "two-line teaching mode" and "alternative teaching mode between online and offline" should be adopted to

create a new normality of mixed teaching. Mixed education as a mode of teaching requires in-depth research on issues such as form, modality, distribution, integration, connection between courses, faculty allocation, and a methodology of mixing education for different students and schools.

2 The Singularity Is Near, and the Origin Is Back: Education Reform in the Age of Intelligence

The above discussion on online education leads to a detailed inquiry into the basic question: the relationship between technology and educational reform. A review of the history of educational reform reveals that it is usually driven by thought or technology; often times thought plays a larger role, and other times technology.

Currently, the fourth industrial revolution, Industry 4.0 represented by artificial intelligence (AI), is leading human beings into a new era of intelligent machines. Technology enables educational reform to embrace more possibilities. Whilst driving in-depth and systematic educational reform, it also brings unprecedented complicated situations and potential risks to education.

2.1 The Age of Intelligence Is Sure to Promote Education Reform

Artificial intelligence, the fourth industrial revolution, Industry 4.0, the age of intelligence, and the age of smart machines, though different in expression, refer to similar concepts and have become hot topics of educational academia. Undoubtedly, the age of intelligence will influence education and promote educational reform. The first path of reform is putting forward new requirements for education in accordance to a changing social life. As some studies reveal, the age of intelligence will profoundly change human life. The development of intelligent society will put forward new requirements for the content of education and the type of talent and educational patterns, based on the change of knowledge, structural capacity and demand for employment (Lei, 2020). The second path of reform is to influence the linkage between labor skills and education, as the essential characteristics of industry 4.0 technology directly influence the labor market. Industry 4.0 technologies are interoperable, virtualized, service-oriented, decentralizing, and modularized with real-time capability. They influence the labor market at the macro level, the internal labor organization of enterprises at the meso level, and the labors' skills at the micro level (Yang, 2020a). They also impact education by directly redefining talent. The biggest impact intelligent machines have had on education is that they have changed the definition of talent. To foster new-type talent, the existing educational organization mode and process require major changes rather than simply improving or adding one

course or two (Zhao, 2020). The difference between these paths lies in the indirect influence or direct influence. However, they all clearly show that there is a trend: that education reform in the age of intelligence is approaching.

2.2 Directions of Educational Reform in the Age of Intelligence

In light of the educational system reform, flexible capability-oriented basic education should be developed in order to lay a solid foundation for the whole career. Industry schools should be implemented to advance reform in vocational education and teaching. Higher education should be restructured to foster innovators and leaders for the age of Industry 4.0. Endeavors should be made to build learning organizations for lifelong learning amongst employees (Yang, 2020a). In light of personnel cultivation standards, the educational strategy addressing the challenge of intelligent machines should pay more attention tino fostering students' morality, ethics, value judgment, creativity, social emotion and instinct judgment (Zhao, 2020). High-end international, innovative and versatile talent with digital and intelligent competence should be fostered (Gu, 2020). From the perspective of educators, compared to human teachers who have educational wisdom and teaching strategies, "the level of intelligence" of the existing AI system is lower. Its ability to solve educational problems is limited. The in-depth application of AI needs to tackle difficulties and barriers in technology, ethics, systems and their effects (Xiao et al., 2020). It should be conceded that educational reform driven by AI does not happen overnight. Rather, it is a gradual process that might experience three realms before shifting from industrialized education to intelligent education. First, empowering education maximizes the efficiency of standardized education. Second, innovating education breaks the standardized educational system to achieve individualized learning. Third, remodeling education promotes education from the stage of "destandardization" to the stage of "deinstitutionalization" (Cao, 2020a).

2.3 Unavoidable Potential Ethic and Value Risks

As always in interpersonal relations, education is a cause full of value. Any educational reform should be focused back to the origin, face ethical and value issues squarely and handle them properly. In the age of intelligence, the exploration into educational ethics and value lies fundamentally in answering the question of whether future education is to make people more like machines or humans. Based on this, people express some concerns. Knowledge updates rapidly in the age of information, plunging individuals into situations with too much to receive and adapt within a short period. As the boundary between truth and false disappears against virtual

reality, will it push people away or bring them closer to real life? Will the wisdom and competence example set up by AI lead people to homogenize or to individualise? Will fragmented, ubiquitous, instant and casual fast-food-styled learning strengthen or weaken the real effect of learning? Does the technology age emphasizing ability cultivation and fast learning intensify or ease social competition? Will the enterprise-leading and market-dominant intelligent education pattern make future education fairer or unfairer (Wang & Zixiao, 2020)? Because of these concerns, AI cannot replace the value of human beings and deprive them of subjectivity. AI will not take over all the rights and responsibilities of education, and education should not lose its own right of saying in this progressive campaign of applying AI, which will result in lost meaning and value of education (Li & Huangyang, 2020). Preventing and avoiding potential ethical risks requires education to revert back to the origin, which means refocusing on the locality and ontology of education. Locality stresses that education should take China's traditional cultural, social system, and realistic people's lives as its foundation, while ontology emphasizes that education should be people-centered and uphold the principle of cultivating virtues. The fine traditional Chinese culture highlights the study of life in terms of ontology, virtues and ethics in terms of value theory as well as the role of mentality on consciousness and understanding in terms of methodology, which underpins the construction of educational ethics in the age of intelligence. The fine traditional culture advocates the technological ethics of being kind and plays a valuable role in preventing humans from being alienated by technology, avoiding vicious competition and ensuring equity. It is the origin of the reflection on education development in the age of intelligence and the spiritual treasure house for pursuing a better life and will contribute to the Chinese wisdom of avoiding ethical risks of technological application in future education around the world (Wang & Zixiao, 2020).

3   Education Becomes an Important Mechanism for Poverty Reduction

Poverty reduction and alleviation are a shared dream by human beings. The first goal of the UN Millennium Development Goals (MDGs) is "Eradicate extreme poverty and hunger". What tops the 17 sustainable development goals in *Transforming our World: The 2030 Sustainable Agenda for Sustainable Development* remains "End poverty in all its forms everywhere". In 2020, China completely won the battle against poverty. Education, as one of the five major mechanisms against poverty, assumed its mission and fulfilled its responsibility. The guarantee for compulsory education has been achieved across the board, to which educators working on theories contributed knowledge and thought.

3.1 Clarifying the Internal Mechanism of Poverty Alleviation Through Education

Poverty alleviation through education is a way of poverty alleviation that enhances the poor's endogenous motivation and capacity offor development. It can effectively prevent the population lifted out of poverty from falling back into poverty because of the interruption of assistance from others.

Stopping poverty culture being passed down from generation to generation is key to eliminating poverty from the root (Yuan & Yashi, 2020). Empirical research also shows that education has been a stable and positive variable for poverty alleviation regardless of the degree of poverty, overall difference, difference between urban and rural areas and between cities (Liu, 2020a). To reduce poverty, it is essential to clarify the internal mechanism. The root cause of poverty is the lack of human capital; education is an important aspect of human capital. To fight against poverty, input in education should be increased, and priority should be given to educational development. Moreover, parents in poor families have lower expectations of their child's educational attainment, living ability and career prospects, which to some degree affects their attitude towards child's learning, learning incentives, learning motivation, and educational investment, leading to the passing down of poverty from generation to generation (Yu & Xiaorong, 2020). Based on this understanding, the mechanism to increase human capital should come into effect. First, the average years of schooling per capita should be increased, especially that of the new population, by raising the penetration rate of education at all levels and of all types. Increasing the years of schooling not only helps this generation eliminate poverty, but also improves the education level of the parents of the next generation, thus stopping the passage of poverty from generation to generation. Ability is the core of human capital. The key to poverty alleviation through education is empowering cognitive and non-cognitive abilities to help the poor receive education and build aspirations. In terms of empowering cognitive abilities, efforts should be made to help improve the poor's cultural literacy and job skills, stimulate, develop and cultivate potential in different areas during the process, and form a long-term-effect mechanism in which human capital, material capital and social capital cooperate with each other to help poverty reduction (Wang, 2020b). In terms of empowering non-cognitive abilities, poverty elimination through education takes on the mission of enlightenment. Helping the disadvantaged build aspirations is key to poverty elimination through education, whose special status and role is highlighted in the entirety of the poverty-reduction system (Mo, 2020). Having access to education, education lasting longer periods of time, and acquiring more cognitive and non-cognitive abilities is not enough to be recognized as being completely lifted out of poverty. Rather, it depends on using the leverage of education to make "those being educated" distinguished in the labor market and have greater core value and added value, thus realizing intergenerational flow.

3.2   China's Theory of Poverty Alleviation Through Education Has Taken Shape

The year 2020 was the final year of the fight against poverty, during which poverty alleviation through education contributed to plenty of practices. Based on these practices, China's theory of poverty alleviation through education has taken shape. The underlying logic of the theory is giving priority to educational development, which has been an education philosophy held by the Party and government since China's reform and opening-up. Especially since 1992, giving priority to the development of education has been part of China's national education strategy. It has been a strong supporter for poverty alleviation through education. The empirical analysis of panel data of educational investment and rural residents' income in the five provinces in Northwest China finds that every 1% increase in education funding will bring about a 0.56% increase in rural residents' income; the increase in education investment contributes over 65% to the increase in the per capita net income of rural residents in the five provinces in recent years, and the contribution can be up to 87%, representing remarkable achievement of poverty alleviation through education (Peng, 2020). The core of the theory is to ensure that the poor have fair access to education and to promote access to quality education. Regarding fair access to education, the key is promoting compulsory education by controlling the drop-out rate and maintaining school attendance. The essence of controlling the drop-out rate and maintaining school attendance is extending schooling years. In 2020, China's consolidation rate of nine-year compulsory education reached 95.2%. The schooling years of the labour-aged population averaged 10.7 years, equivalent to the second year of senior high school. The average schooling years of the newly increased labor force hit 13.7 years, equivalent to the level of sophomore year of university. Regarding access to quality education, the key is to ensure balanced development of compulsory education. In China, 96.8% of counties have passed the national supervision and evaluation of the basic balanced development of compulsory education. Emphasizing access to education and access to quality education simultaneously means that poverty alleviation through education has shifted its focus from part to entirety. The thinking method of this theory is systemic thought. With guaranteeing compulsory education as the core, endeavors should be made to advance the categorization reform of vocational education, leverage the distinct role of vocational education in helping the poor's building capacities, advocate key universities to allocate more enrollment for poverty-stricken regions and poor households in order to directly cut off the intergenerational transmission of poverty and provide more targeted assistance and grants. With multi pronged approaches, a policy system and working system of poverty alleviation through education has been established.

3.3 Turning to Help Alleviate Relative Poverty Through Rural Educational Revitalization

At the new development stage, the poverty reduction effort shifted to rural revitalization. After eradicating extreme poverty, relative poverty becomes the main symptom of China's poverty issue. Therefore, poverty alienation through education shifts its focus to revitalizing rural education and to helping those in relative poverty through rural revitalization. The premise is to continue to increase investment in educational development and to stop the intergenerational transmission of poverty with dual paths of supply-side and demand-side effects of education (Hou, 2020). The key is building an inclusive public service system for education that covers all urban and rural residents and integrates urban and rural areas, promotes equalization of basic public education services to enable the poor to have the capability of resisting risks and achieving sustainable development; thus achieving endogenous development in poverty-stricken areas (Wang, 2020b). Efforts to control dropout rates and maintain attendance should shift from external control-based logic to endogenous logic by improving schooling and winning support from parents and society (Zhao & Chunping, 2020). The focus is that it is crucial to establish a national mechanism to monitor and prevent falling back into poverty due education and to keep helping the poor by building and improving relevant systems to evaluate and track education in registered state-level poor households (Li et al., 2020c).

4 Education Equity Moving Toward the Pursuit of Substantive Fairness

Education equity is an essential attribute of socialist education. Promoting education equity is a basic national education policy. In the twenty-first century, especially since the 18th National Congress of the Communist Party of China, China has made great strides in educational fairness. With the issue of fair access to education resolved, China's education has advanced into a new stage of pursuing substantive fairness. How to look at the new content and new challenges of education equity after entering the stage of substantive fairness has become a great concern for academia.

4.1 The Standard and Evaluation of Education Equity Is Changing

The measure for analyzing education equity mainly comes from the concepts of equity and justice in political philosophy, based on which education equity is classified into distribution equity, ownership equity, recognition equity, etc. Alternatively, from the perspective of the justice process, education equity is classified

into starting point equity, process equity, result equity and other basic types. Based on whichever type, China has undoubtedly made great achievements in education equity, as people's right to education has been guaranteed with access to education, and compulsory education at the county scale has been basically distributed in a balanced way. However, people also note that in some provinces and cities, the development level of compulsory education demonstrates a dilemma of imbalance between form rationality and substance (Si & Lianhua, 2020). It reflects the fact that people's expectations of education is not only about the right of education, access to education and the basic balance of compulsory education, but also about rule-based equity, access to quality education and balance of quality education resources. The standard and measure of educational fairness is changing, and the judgment and evaluation of education fairness is changing correspondingly. It is time to elevate the connotation of educational fairness from fairness of form to that of substance.

4.2 Substantive Fairness Points to Fair and Quality Education

The focus of research on education equity begins to shift to educational process equity that pays more attention to details and has more humanistic care (Huang et al., 2020). Process equity is not only about equity itself but also about quality. In process equity, the focus of the issue shifts from unbalanced equity or insufficiency of quality to the relationship between equity and quality (Li, 2020g). Process equity points to fair and quality education, which helps students receive education that is suitable for them. Suitable education refers to higher-level education with better quality, which is closer to the essence of education. The fundamental purpose of education is to enpower people who are receiving education to have the ability to create a better life (He, 2020). Against the backdrop of building a high-quality education system, fair and quality education means the pursuit of education with greater fairness and quality. One example is the enrollment exam. Since the founding of the People's Republic of China, the value orientation of its enrollment exam policy has essentially shifted from equal rights and equal opportunities to equal development. The essence is the shift from form equity to substantive equity. After ensuring that everyone can have equal access to enrollment and opportunity to pursue higher-level education, China should advance the reform in its enrollment exam policy by adopting the new logic of equal development equality. In recent years, China has built a fair policy system that make key universities admit more students from rural and poverty-stricken areas, which marks the greater efforts by the Party and the country to develop more equitable and quality education in the new era (Li & Qiuxiang, 2020).

4.3   The Policy Implication of Substantive Equity

After entering the substantive equity stage, the policy implication changes. First, it pays more attention to meritocracy or the cultivation of top-notch innovative personnel. In the context of building a great modern country, especially a country of innovation, meritocracy and the cultivation of top-notch innovative personnel have great strategic significance in the sense that building a strong country requires developing its education. Additionally, it is of humane meaning and intrinsic value to develop meritocracy to meet the developmental needs of children with outstanding abilities (Chu, 2020). Higher education institutions should follow the international trend, alter the philosophy of producing top-notch personnel, and provide diversified programs suitable for students' personality and their individualized needs (Yan & Han, 2020). Second, it enhances public educational service ability at the local county level. China's urbanization strategies are changing, and counties will see new-type urbanization. Thus, strengthening the public service ability of counties will be an essential task. Currently, the gradual decline of county-level senior high schools has attracted much attention. Studies find that lowering the difficulty level of college entrance exams will increase the opportunities of students from county-level senior high schools to be admitted into elite universities. Meanwhile, this will lower the degree of monopoly a few high schools have on access to elite universities and make the enrollment more balanced (Guo et al., 2020). Therefore, we should design the difficulty level of the college entrance exam in a reasonable manner. While ensuring its basic function of selecting talent, we should fully consider the important role of county-level senior high schools in promoting the intergenerational mobility of disadvantaged people in China and further maintain the realization of social justice. Third, it emphasizes the normal flow of teachers between urban and rural areas. At the stage where compulsory education advances from basic balance to quality balance, the key to achieving quality balance for compulsory education at the county level lies in the balanced exchange of high-quality teachers among counties. The optional improvement strategies for building a normal exchange mechanism of teachers between urban and rural areas include scientifically allocating educational space and resources, establishing a public governance mechanism of equal obligation, building an enclosed grid space faculty allocation system and promoting the flow of "virtual teachers" (Yin, 2020).

5   Integration and Curricularization: New Coordinates of Political and Ideological Theory Courses

Political and ideological theory courses are a component of education of socialism with Chinese characteristics, as well as the fundamental guarantee for students to achieve all-round development. Attaching great importance to its development, the CPC Central Committee and President Xi Jinping have made major decisions that

have achieved significant results. The new vertical and horizontal coordinates of political and ideological theory courses were initially established.

5.1 Political and Ideological Theory Courses Are Key Courses for Cultivating Young People in the New Era

Political and ideological theory courses are of great significance. The courses should be built according to high standards. (Shen, 2020). On the one hand, only by building courses according to high standards can we highlight the important status of ideological and political courses in the new era as well as emphasize their function as a main channel and as a way to cultivate young people for the new era, thus leveraging their role in thought-leading value orientation in a better way. On the other hand, only by making greater efforts to build political and ideological theory courses in coordination can we keep improving their function and effect of cultivating young people (Gao, 2020b). Courses of high standards and built with great effort are determined by their functions and roles. The construction of political and ideological theory courses is related to not only the implementation of the Party's education policies and realization of educational goals but also the direction of socialist school running in the entire education system and the cultivation of young people in the new era who assume the mission of national rejuvenation (Han, 2020b). The construction of political and ideological theory courses can help foster students' ideological and political literacy and morality, and it plays an irreplaceable role in improving students' ideological and political understanding (Yang, 2020c). High-standard construction of political and ideological theory courses with great efforts is also determined by the current situation of the courses, as they face new problems and challenges. For example, people are not well aware of their important status; the content of courses is not interesting enough; the evaluation and supporting system of the courses is to be improved; and the courses face unit division, disconnection between educational levels and poor cohesion (Ye, 2020). All these require serious consideration.

5.2 Improving Integration Is the Horizontal Coordinate of Political and Ideological Theory Courses

Integration refers to building a system of political and ideological theory courses that runs through all educational stages ranging from preschool to primary school, middle school to college. First, we should build an integrated, systematic and cohesive system (Chen, 2020). We should take into consideration the varying features of preschool, primary school, middle school and college; understand the characteristics of students' mental development and personality development in preschool, primary school, middle school and college; implement an overall goal of fostering

virtue through education at different educational stages and in all types of schools; and develop a system of political and ideological theory courses with integration and diversification (Yang & Yanping, 2020). Second, we should consciously strengthen the construction of the weak links. We should strive to reverse the upside-down phenomenon of political and ideological theory courses, promote activities related to political and ideological education in primary and middle schools, bring relevant activities into courses, and ensure the political and ideological theory courses are included in the curriculum. We should strengthen the specialization of political and ideological theory courses at higher education stages and improve the professional level and teaching quality (Liu, 2020c). Third, we should pay attention to the development of educational spaces outside of schools and develop a school-family cooperating mechanism.

5.3 Making the Curriculum the Horizontal Coordinate of Political and Ideological Theory Courses

In the past, moral education was implemented in all subjects in primary and secondary schools. At present, some higher education institutions, based on their long-term ideological and political work, have developed political and ideological theories taught in all courses, which stresses that all kinds of courses should shoulder the responsibility of educating people and educating all students throughout the schooling years and in all aspects. This is an important innovation in educational theory. The ideas of moral education implemented in all subjects, or political and ideological theories taught in all courses, reflect the curriculum-oriented thought of political and ideological theory courses. Curriculum-oriented thought means that political and ideological education is not only the mission of political and ideological courses. Rather, all the subjects and courses shall include the content of political and ideological education. There will be major changes brought by political and ideological theories taught in all courses in higher education institutions. First, the change of school curriculum management. Some studies believe that curriculum planning should highlight the centrality of educating people, create the teaching system of all subjects educating people in curriculum implementation, and take fostering virtues and educating people as the fundamental standard for curriculum evaluation (Yang, 2020c). Second, the school's ideological and political working system has changed. Studies point out that the curriculum should be a part that can fully bring forth the responsibility of ideological and political work, widely apply the concept of educating people in all subjects in the work and make political and ideological theories taught in all courses contribute to the ideological and political work system. Thus, we can build a system which guarantees teaching political and ideological theories in all courses (Shen, 2020). The third is the change of teachers' work of educating people. Some studies emphasize that we should enhance teachers' awareness of teaching political and

ideological theories in all courses and improve their ability to practice that (Gao, 2020b).

6 Reflection and Progress of Moral Education Under Public Crisis

Moral issues are complicated, and moral education continues to improve. The outbreak of the COVID-19 pandemic drew humanity into a public health crisis. As crises contain opportunities, educational academia carries out discussions on the topic "public", promoting the update of moral education knowledge.

6.1 Public Crisis Triggers Discussion on Moral Education

In the face of adversity, people tend to show their true colors, which easily leads to discussions regarding morality and moral education. This is because, in light of the relationship with oneself within the context of the social environment, personal experience and direction of public opinion, the moral ideas people gain might be moral prejudice (Gao, 2020a). In light of the relationship with others, the lack of boundary consciousness and rational spirit leads to blame in the name of morality and immoral results. In light of the relationship with society, the pursuit of exquisite self-interest alienates people's relationship with society, leading to an insufficient sense of social responsibilities. In fact, the three situations seem to have something with the awareness of public regulation and spirit of contract, which has been a weakness of our social construct. Against the backdrop of a public health crisis, the weakness is exposed more acutely. Research points out that with the inadequacy of the tradition of the public person, the accelerating expansion of "individual person" under market economy is showing and revealing the declining trend of the public person (Feng, 2020a). This result contrasts with the priority of public interest and collective consciousness emphasized by our country. Therefore, it is an important proposition to implement education of public characters based on public spirit, public participation and cooperation (Zhu and Wang), foster a public person who stands by public position, participate in public life, carry out public communication and have public characters (Feng, 2020a), and develop right public values by building boundary consciousness and rational spirit of subjectivity.

6.2 Attaching Greater Importance to Fostering Sound Personality and Public Character

Personality matters more than grades, and education, especially moral education, should attach greater importance to the cultivation of students' sound personality. Following excellent examples is an important way to foster personality. With compassion as the original motivation, "same thinking and same structure" as the true state, "personality generation" as a fundamental direction, such education, can be regarded as a path of model education (Sun, 2020). Instead of producing moral sages, exemplar education establishes basic moral qualities through example, from which it fosters a sound personality (Dong, 2020). It is also an important path of public values education to cultivate learners' basic affective quality, help them build ethical awareness and moral spirit, and foster a moral foundation to educate people through values (Wang, 2020d). On the basis of building a sound personality, we should foster people's public character through public value education. Public values refer to value consensus and public code of conduct gradually established when members of society participate in public life. China's socialist core values are widely recognized public values. However, in practice, values education has the problem of "knowing but not believing, knowing but not practicing". The root cause is that we ignore and forget the "genetic phenomenology" of values (Hu, 2020b). To awake and activate a deep understanding of the genetic phenomenology of public values, we should give way to the subjective initiative of moral education's subject.

6.3 Promoting Moral Education While Improving Social Civilization Standards

The Recommendations for the 14th Five-Year Plan for National Economic and Social Development and *The Long-Range Objectives Through 2035* indicate that China should improve social civility standards. A society is composed of people of generations, and social civility depends on the quality of people of generations. The basis of social civility is the awareness of social responsibility in each member of society. This puts forward higher requirements for and brings new opportunities to moral education. To promote moral education while improving the level of social civility, we should further review some prerequisites of moral education. For example, in moral education, we often advocate that children model adults. This is reasonable but not enough. We cannot put all the weight of moral education on children, nor the adults' sense of social responsibility and awareness of public regulations. In fact, all the adults were once children. In moral education for children of this generation, we should break the individualized, competitive and isolated approach of existence and education and foster younger generations with a sense of social responsibility, public participation spirit and civic duty to achieve the national, social and individual mission of moral education (Ye, 2020). Based on the core socialist values, we should

guide children to understand and think about the positive value association between themselves and the country, build deep emotional and cultural bonds between themselves and the Chinese nation, and learn to correctly judge and evaluate the value links between themselves and the environment, humanity and the world as a whole (Sun, 2020). Moreover, by virtue of the community of moral education, we should foster public character with community spirit as core and make people consciously participate in community life and care about others as well as society and the country (Zhang & Fengqin, 2020).

7 Curriculum and Teaching Reform from the Perspective of the "Big Idea"

The curriculum and teaching reform is shifting to competence-oriented, which means the transformation from introducing experts' findings to cultivating deep contemplation. Thinking like an expert is transferable and conducive to helping students solve realistic issues. However, the method of applying this goal to the curriculum and teaching transformation remains a hurdle. Currently, both theoretical circles and practical circles focus their attention on the "big idea", which has gradually become the pillar for implementing curriculum and teaching reform.

7.1 Curriculum and Teaching Are Experiencing Value Transformation with Competence at the Core

The introduction of core competence and key capability has enormous influence on the field of curriculum and teaching. This influence is not limited to being included in relevant text; rather, it also lies in the value-orientated transformation of the curriculum and teaching practices. Knowledge and real world ability can be the goal and value of curriculum and teaching methodology. To impart knowledge and to foster skills was a Rashōmon in history. For a long period, China's curriculum and teaching have attached great importance to imparting knowledge, and it is fair to say that the knowledge orientated approach is deep-seated. Nonetheless, whether from the perspective of future goals or from that of realistic issues, it is time to shift the country's curriculum and teaching practices to be oriented around competence and focus on cultivating students' cognition, innovation, cooperation and professional ability. Today's education should focus on real world issues that students have to face in the future. From the perspective of migration, if students attain knowledge from books via systematic methods, they will "forget it systematically" after they graduate (Liu, 2020b).

7.2 "Big Idea" Can Make Competence Goals Concrete

In curriculum and teaching, the core idea and key idea of the subject are what are often featured. What is the difference between "big idea" and the two? The core idea and key idea usually care about the integration of knowledge within the subject, while the "big idea" gets through not only learning within subjects and between subjects but also the relationship between school education and the real world. "Big idea" reflects the idea, concept, or topic of professional thinking. Abstract or high-level thought does not come away from concrete situations, rather it comes from nothing. Because professional thinking comes from concrete situations, it can be applied to concrete situations. "Big idea" with professional thinking reflects coordinated thinking between the concrete and the abstract (Liu, 2020b). From an epistemological point of view, "big idea" is summarized based on facts, experience and concepts; thus, it usually refers to upending ideas at a higher level, placing core ideas at the center and having essential ideas hidden within deeper contemplation. Methodologically, "big idea" provides people with a cognitive framework to understand things and gain knowledge. With this cognitive framework, people can clarify the connection of facts, experiences, things and concepts. They can also understand the meaning of facts, experiences, things and concepts as a whole. From the perspective of axiology, "big idea" is valuable to the understanding of things and the construction and transfer of knowledge, and it takes into account human factors, human nature and human society (Li, 2020e). With the help of a "big idea", we can turn competence into concrete goals, push student-oriented teaching reform to develop students' core competence as well as a lever to prmote teaching reform in deep water zones (Li, 2020f).

7.3 The Implementation of "Big Idea" with Unit as Carrier

"Big idea" is hierarchical. It includes the big idea of the subject and of the big idea of having multiple subjects. At present, it has attracted the attention of teaching various subjects, specifically related to Chinese (Xu, 2020), Math (Li & Xindong, 2020), English (Wang et al., 2020), Science (Li et al., 2020a), Politics (Zhang, 2020a), History (Li, 2020b), Geography (Zhang, 2020b), Chemistry (Wu & Zihua, 2020), Biology (Su and Zhao), Physics (Cao, 2019), and Art (Shen, 2019), and is applied to interdisciplinary learning, such as labor education (Li & Lijie, 2020) and learning of science-technology-engineering-mathematics (STEM) (Liu et al., 2020a). Whether it is a single subject or multiple subjects, the specific courses and teaching practice are based on the unit because a single lesson is not enough to support the establishment of a highly abstract "big idea", while the unit as a set can provide a variety of specific cases. In that case, the unit is the best vessel, which responds to the structured idea of curriculum design. A unit carrying a "big idea" has three forms of expression: dominance, semi recessiveness and recessiveness. Dominance refers to clearly extracting the core idea of the subject from the curriculum and placing it on

the structural fulcrum of the curriculum system. Teaching material is complied based on this and clarifies the design unit. Semi Recessiveness means there is no unit for designing content based on certain core ideas in curriculum standards or textbooks, and teachers need to adjust part of the content in the textbook for subsequent course development. Some "big ideas" emerge in different grades, educational stages and even subjects. They are either spiraling or joining together other across subjects. Such units also need to be developed by teachers to form virtual units and to guide students with certain purposes in different time periods or courses so that they can gradually understand the "big idea", which is the recessiveness of the "big idea" (Lv, 2020).

8 Teachers' Professional Development in the Age of Accelerations

Teaching staff underpin the construction of a high-quality education system. The 17 million teachers in China are a large team, and their career development carries too much importance. Every stage of life for different teachers contains its own unique characteristics. In an age where everything happens more quickly, what "teachers of this generation" have encountered, what they have shown and what they have left have triggered people's attention and discussion.

8.1 "Teachers' Career Development" Has Become an Area with New Connotations

Friedman, T., the columnist of *New York Times* once had a vivid description of the feature of the age, saying "The market, Nature, and Moore's Law speed up simultaneously and constitute the 'age of accelerations', and this is where we are (Friedman, 2018)." The root of "accelerations" lies in "Moore's Law", i.e., the information technology revolution (Wang, 2020c). This way, teachers are facing a new situation in their career development. Teachers in the school system have gained a new understanding and experiences of their profession consisting of the age they live in, society and students. The age of accelerations has given birth to teachers of shadow education, online teachers who exist in cyberspace, and even smart robot teachers. All of which are changing the occupation of teachers. The clear definition of the teacher of the past is becoming blurred; thus, a new definition is needed. Some new problems and new topics arise among these changes, such as burnout, which is a kind of psychological and behavioral phenomenon often seen in teachers (Shi, 2020). Identity crisis is also a major new problem. While empowering teachers, technology also brings them new challenges and requires them to change how they see their professional role (Zhang, 2020c). Teachers' identity is an issue that we should profoundly

explore from the perspectives of theory, policy and practice. Another problem is the competency issue. For example, teachers no longer hold a monopoly on knowledge, and their advantage in knowledge and information is not as large as before. The requirement for teachers' information literacy has been raised to an unprecedented level due the emergence of the Internet.

Teachers' competency standards will be redefined, and their career requirements will be fully updated (Lei, 2020). Teachers' professional development in the new era demands "integration of both online and offline teaching competency" (Qiu & Zhengtao, 2020).

8.2 The Age of Accelerations Has a Two-Way Influence on Teachers' Career Development

In the age of accelerations, the rapid development of information technology, changes in the speed and method of spreading and gaining knowledge and the exponential increase in the accumulation of data and information have significantly influenced teachers' career development. On the one hand, the development of information technology enables teachers to have more convenient access to teaching resources. This supports their career growth and development. It also helps meet their needs for professional development, greater autonomy, and a sense of belonging (Liang, 2020). Moreover, the promotion and application of information technology frees teachers from heavy manual labor, so they can spend more time and energy teaching and focusing on the essence of "educating people". At the same time, teachers can analyze and diagnose students with information technology and use that to help students formulate personalized learning plans and strategies (Fan, 2020b). On the other hand, rapid social transformation and a fast-paced work culture make teachers work longer hours. They have to meet higher requirements and work under greater pressure. This will seriously affect teachers' satisfaction with their work (Liang, 2020). Teachers in the career development process might become lost in terms of the institutionalization of academic life, frustrated with conflict between work and family, and struggle to balance academic freedom and institutional regulations. Their physical and mental health might have a causal relationship with burnout (Yan, 2020). Despite a full schedule, the things they do or experience seem to leave no trace in their memory. Teachers' autonomy and flexible pace of life is greatly affected; their emotional anxiety has gradually become a social symptom (Cao, 2020b).

8.3 The Focus of Teachers' Career Development in the Age of Accelerations

Overall things remain the same despite all the changes. Educating people is the eternal duty of teachers. The prerequisite for teachers' career development in the age of accelerations is to have good teachers' ethics, which is the foundation for maintaining the profession of teachers and an integral component of teachers' professional development. Taking teachers' ethics and virtue as the foremost standard and building a professional code of morality for teachers in universities, middle schools and primary schools is urgent (Ren, 2020). Regarding teachers' ethics, the most important thing is to realize that as a responsibility, it varies greatly in content, structure and weight at different academic stages (Tan, 2020a). At the preschool stage, teachers' ethics must start with protecting and promoting the full realization of every child (Feng, 2020b). At this stage of basic education, it is wholesome, demonstrative and developmental (Li, 2020c). At the same time, it is open. That is, teachers embrace different styles, have inclusive attitudes towards students' culture when interacting with them, and enrich cultural characteristics in self-introspection (Yang, 2020b). At the higher education stage, university faculty members have a unique set of ethics with the characteristics of an academic profession based on advanced knowledge, advocating academic freedom, and taking the academic community as an entity consisting of its relationship with its ethics (Li, 2020a). In the age of accelerations, the core of teachers' professional development is to enhance their ability to educate people amid changes and challenges. The value of teachers' ability to educate people is that it leads students to build correct views of the world, life and values, develop a strong sense of justice characters, increase knowledge and wisdom and improve the mastery of skills and methods (Liu et al., 2020b). In the age of accelerations, the key to teachers' professional development is to improve information literacy. In teachers' career development, we should incorporate technology into teachers' lives and enrich teachers' quality of life so that teachers can use technology to interact with students and promote the development of humanity in practice, thus highlighting para-life features (Ye, 2020).

9 Promoting Health Through Health

A great pandemic has pushed the health issue to the forefront. People in all related fields are studying health issues from their own perspectives. Education is an important part in shaping lifestyle and promoting physical and mental health. An in-depth exploration of the relationship between education and health has important policy value and academic significance.

9.1 Education Is an Important Factor Affecting Health

Many social factors play a role in a person's health, including gender, marriage, education, occupation, income and lifestyle, among which education undoubtedly plays a more basic role. Considering the essence of education, if human life contains an ontological meaning to the pursuit of mental health, if health is both personal and public well-being, promoting health is an important task for education, and it must include the improvement of people's mental health. If education has no concern over people's mental health and spiritual health, it will lose its fundamental purpose (Jin, 2020). From the perspective of the fruits of education, education can help one get a better job, make more money, and invest more into nutrients and medical insurance. Meanwhile, education can also change personal thinking, improve personal health awareness and shape relevant healthy behaviour (Li & Jei, 2020). Certainly, due to the difference in social structure and personal experience, education's influence varies by age. In adolescence, one has sound health, and education and other post-endogenous factors play a bigger role. As one ages, a person's physical state will decline rapidly, the influence of physical aging on health will reduce the role of other social factors. This will also cause the effect of education on health to further decline (Li et al., 2020a). Education's influence on health is also cumulative from one generation to the next. On the one hand, parents with a higher level of education are more inclined to increase investment in children's education. Such an educational mechanism helps maintain the educational advantage of children and results in a "cumulative effect" on health (Li, 2020b). On the other hand, parents' behavior will also produce a "socialization effect". Their stronger belief in health being important can reduce children's risky behavior and foster positive behavior that contributes to health rather than being detrimental (Hong & Jie, 2020).

9.2 How Education Promotes Health

How does education promote health? There are the two main sources of influence. First, education can positively influence people's health by increasing their personal income. As an integral part of human capital, individuals can turn skills and knowledge acquired from education into corresponding economic resources in order to provide a material basis for improving health. People with higher educational levels usually have more income, and they are more likely to participate in various medical insurance programs and are able to obtain more medical care when they are sick due to their socio-economic status. Second, education can promote health by shaping a good way of life; that is, education can improve personal healthy awareness and shape a way of life that can achieve long-term health. The higher the level of education one receives, the stronger their ability to control their life, and the greater their willingness will be to choose a healthy lifestyle. They might take more exercise and have a healthier diet, a more consistent schedule, and display less bad behavior such

as smoking, drinking and taking drugs. He is more willing to follow the advice of doctors, undertake physical examinations and take preventive measures to strengthen their health. (Li, 2020d). In youth, education mainly promotes health by promoting lifestyle choices which influences health far greater than income. After that, the impact of education on health is mainly restorative, and the impact which lifestyle has on health will gradually weaken, while economic status will become the main path that affects health (Li et al., 2020a).

9.3   *Improving the Educational Approach to Promote Students' Physical and Mental Health*

In light of education at all levels, the early years as students are an important period to shape lifestyle habits and foster healthy behavior, at the key point of organ and tissue development, when they are sensitive to the external environment and have strong plasticity. During this period, disease prevention and intervention cost less and have greater benefits. A tiny change in risk factors may lead to lifelong health benefits (Gao, 2020c). Early exposure has a lasting influence on future health, and it will not be offset; however, socioeconomic factors will change in the future. Therefore, strengthening health awareness education in the early years is important for promoting the future physical and mental development of individuals. All types of education should enhance education of the "body" by improving physical education, allowing students to develop a passion for both sports and PE courses, and strengthen vocational education. For education on mental health, art education should be strengthened to integrate art and education and deliver benefits to all students. Moreover, we should strengthen mental health education, develop the specific goals and details of each stage as a whole, build a new health integration pattern that is horizontally suitable for age features and vertically suitable for personality development rules, and with all stages well connected (Yu & Yali, 2020). In education management, we should realize that policies regarding class grouping based on ability and fierce competition for high-quality educational resources among households, though helpful for students' academic performance, might take a toll on students' mental health as a price. Weakening the differentiation of educational resources at the stage of primary education, easing fierce competition in education and enhancing the integration of students at school are conducive to students' overall development (Wu & Fan, 2020).

10   Can Computational Social Science Bring Computational Education?

In China, interdisciplinary integration has been a national strategy. Outside of China, computational social science is at the forefront. Technology is changing education

in this domain, and the bigdata research paradigm is gaining momentum. All these factors foretell the emergence of computational education, but things seem to be not that simple.

10.1 New Trends in Knowledge Production That Support Disciplines

Human society, the object of social science research, is a complex adaptive system. The new round of information technology revolution enables social science to embrace a data-intensive era, as access to unprecedentedly vast information resources for research marks a new era for social science research (Luo, 2020). Computational social science emerges along with the trend. Computational social science is not only the introduction and application of pure technology but also the diversified update and transformation of the research paradigm. Its essence is the penetration, integration and innovation of technology h represented by computing science, data science humanities and social sciences (Wang, 2020a). This means that the way to produce knowledge in social science is changing, and it relies more on big data and is evidence-based, which might affect teaching practices. First, the scientific concepts, knowledge and methods used in education sciences come from other branches of sciences. Knowledge derived from education, compared with that of other subjects, is more context-dependent (Zeng et al., 2020). Second, for a long period, philosophical speculation, integration of experience and fragmented empirical analysis have been the main approaches used to produce educational knowledge. Third, in terms of the development trend of the international educational scientific research paradigm, quantitative and qualitative methods and other empirical research methods have been applied the most in the past decade, while the application of philosophical thinking has been on the decline Quantitative research methods have been constantly updated and have become increasingly diversified, refined and scientific (Wang & Minjuan, 2020). The emergence of big data and advancement of more intelligent technology have promoted the development of educational practices and the systematic change in the research paradigm, making the emergence of computational education inevitable and necessary (Zheng et al., 2020).

10.2 What Is the Proposition of Computational Education

Based on the perspective of subject construction, computational education is an emerging discipline with quantitative educational data as the research object and computation as the main research method. The research method is centered on the calculation method. The research paradigm has shifted from quantitative research based on data-based exploration and research on educational laws both from top

to bottom and from bottom to top (Zheng et al., 2020). With producing innovative talents as the main goal, computational education builds on a data-intensive research paradigm regarding education in the information age and takes educational activities and issues in the information era as the main research object. It reveals the internal mechanism of the complex education system by quantifying educational factors and the interactive process of these factors. Computational education builds its theoretical framework on the basic theories, methods and technologies of education, information science, mathematics, psychology, brain science, etc. It focuses on the understanding of educational subjects, perception of educational situations, customization of educational services and other major issues. It tackles core tasks within the process of fostering talent in the new era. For example, tasks such as new computational education ethics, educational environment computing, educational subject computing, and educational service computing (Liu et al., 2020c).

10.3   What Is the Argument About Computational Education?

According to the foundation of generating educational knowledge, educational research paradigms include experience-based, logic-based and experience-based frameworks (Ma & Ailei, 2020). What is the educational science research paradigm of computational education? The particularity of education and uniqueness of educational subjects determine that the research paradigm of computational education is different from that of natural sciences. The ways of using use data and calculations to quantify the subject of education and reveal the laws of education has become the topic of discussion (Tan, 2020b). Some studies have pointed out that the reduction and digitization of big data is not completely compatible with the overall characteristics of education. The mathematical quantification of human behavior is not as effective and feasible as the mathematical quantification of natural science. The search and expression of educational knowledge and laws, in essence, are the research and theoretical explanation of the principle mechanism, not data analysis. Computational education, by subject, should belong to computational science and information science, not education (Tan, 2020b). In addition, risks will arise when phenomena and problems gradually become an algorithm. The human value in education fades; contradiction exists between certainty of "algorithm" and uncertainty of education; smart technology creates new political and ethical issues, and human beings may face the risk of being marginalized (Zhao et al., 2020). According to the existing small number of discussions, one side is in information science, and the opposite is in education. The study of computational education is about the study of knowledge rather than discipline. Only when computational education reveals truly new laws of education in its own logical way will the knowledge move from cognition to identification.

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