

Thoughts on Several Issues in Education and Teaching Reform in the Context of Educational Informatization

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Abstract: The emergence of new technologies such as the Internet in the 21st century has clarified the orientation of education, promoted the new changes of educational functions, and brought new opportunities and challenges for the reform of education and teaching. Under the background of educational Informatization, it is necessary to clarify several problems in education and teaching reform, such as technology and education, traditional education and network education, traditional teaching and network teaching, so as to make education and teaching reform effective.

1. Introduction

In the 21st century, new technologies such as Internet, cloud computing, big data, Internet of things and 3D printing keep emerging, bringing society, politics, economy, culture and ecology online one after another. Informatization has become an important national development strategy. Various fields are actively exploring, positioning and expanding their respective development space on the Internet platform. Practice has proved that only through effective “connection - interaction - integration - mutual development” can each field exert its maximum effectiveness and achieve the goal of maximizing benefits. Educational informatization has brought new opportunities to education, but also put forward new challenges to education. How should education be positioned when facing the new environment? How can education and teaching be reformed more effectively? These are some issues that deserve deep consideration and discussion.

2. The New Positioning of Education in the Context of Education Informatization

Social and economic development determines the demand for talents, and also directly determines that education is the switch to complete the linkage among politics, economy, culture, society and nature. Education can gather high-quality resources in various fields through the platform established by its own development needs and then integrates, optimizes and redistributes them to various fields in a reasonable and effective way through educational resources and management platform. In this way, the balance between demand and supply can be achieved, and the utilization efficiency of resources can be improved, so as to achieve mutual development in all fields.

The emergence of new technological revolution, the need of social and economic development, the promotion of national policies and the requirements of the law of education's own development provide a new opportunity for the development of education. In the future, the high-quality and innovative talents cultivated by education will constantly innovate new technologies which can constantly create new industrial forms, new business forms and new business models. The formation and development of new industries provide new power for economic progress, new impetus for social development, new help for ecological civilization, and new environment for the improvement of cultural literacy. Therefore, education in the context of new technologies will serve as a “trigger” to awaken the connection among the society, politics, economy, culture and nature. It will act as a “translator” to support the interaction among society, politics, economy, culture and nature. It will serve as a “coordinator” to promote the cooperation among society, politics, economy, culture and nature. It will act as a “server” to lead the mutual development of society, politics, economy, culture and nature. (As shown in Figure 1)

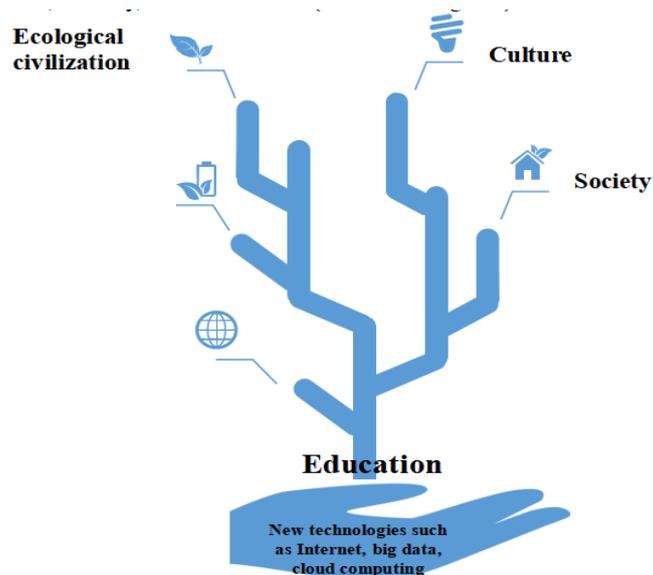


Figure 1: New Positioning of Education in the Context of Educational Informatization

3. The New Direction of Education and Teaching Reform in the Context of Educational Informatization

The reorientation of education corresponds to the change of educational function. Education is based on the premise of completing its connecting function and finally realizing its service function. At the present stage, the primary task of education and teaching reform is to realize the internal connection of education. The internal connection in education is the basic premise of external connection. External connection is a higher stage of internal connection, which is also the ultimate goal of educational development which is realizing the service function that can lead to the mutual development of the society, politics, economy, culture and nature.

The internal connection of education includes two aspects: One is to realize the connection among all kinds of education in the educational system. The other one is to realize the connection between traditional education and online education. According to the core tasks during the 12th five-year plan period, the construction of “three accesses and two platforms” has been basically completed. Three accesses are “school-school broadband network access”, “class-class quality resources access”, and “individual-individual network learning space access”. The two platforms include the education resource platform and the education management platform. The construction provides a basic guarantee for the internal connection. Recently, China has issued relevant policies to further improve educational informatization, and made further plans for realizing the service function of education. In the public document *The Guiding Opinions of the State Council on Vigorously Advancing the “Internet Plus” Action* issued in July of 2015 by the State Council, it “encourages Internet enterprises and social education institutions to develop digital education resources according to market demand and provide network education services. It encourages schools to make use of digital education resources and education service platforms, gradually explore new modes of network education, expand the coverage of high-quality education resources, and promote educational equity. It encourages schools to connect online and offline education resources through cooperation with Internet enterprises, providing new ways for public education services such as basic education and vocational education. It encourages to promote the sharing of online course resources for academic education, promote online learning models such as massive open online courses, explore the establishment of credit recognition and credit conversion systems for online learning, and accelerate the reform of higher education service models.” In November 2015, the vice premier Liu Yandong stressed in the second national teleconference on educational informatization that “the three major goals of educational informatization during the 13th five-year plan period are three basics. First, we will basically put in place an educational information system that “everyone can learn, learn everywhere, and learn at all times “, which is in line with the

national goal of educational modernization. Second, we will basically realize the support and guidance of education informatization to high-quality personnel training and comprehensive reform in the field of education. Third, we will basically form a development path with Chinese characteristics that meets the international advanced standards, integrates information technology and education.”

The current direction of China's education and teaching reform is embodied in two aspects: The first is to further improve the communication and interaction between all levels of education and realize the integration of educational management platforms. The educational management platforms should reflect the individualized educational growth track of each learner who has a unique record there. The record reflects the learning experience of each learner in each period, as well as the learning process, learning content, and learning materials of each learner at each stage. Meanwhile, the education management platforms comprehensively integrate family education, school education, social education and other kinds of education to better promote human education and development. The second is to establish and improve the comprehensive integration of online and offline education resource service platform. On the one hand, it provides social network learning space for learners, creates good online learning experience for learners, diagnoses learners' learning problems with the big data of network learning space, and solves students' problems scientifically with rich offline teachers. On the other hand, abundant offline teachers guide learners to find problems through diversified teaching methods and means, stimulate their interest in in-depth exploration of problems, and actively explore solutions through online network learning space and communication platform. Through the continuous cycle, learners' knowledge reserve can be broadened and their innovation ability can be cultivated. This is the opportunity provided by the Internet for education, and it is also the direction of education efforts.

4. Thoughts on Several Issues in Education and Teaching Reform

Firstly, informatization realized innovation of content. The spatial transfer of content forms the educational network, which forms a series of connections with traditional education and realizes the decomposition and integration of knowledge. It enables learners to choose freely according to their own needs, realizing personalized learning. Secondly, informatization has accomplished many innovations in the educational ways.

Education from distance breaks the limits of time and space; Flipped classroom enables teachers to assign the content in class to students to finish after class, and puts the content after class onto the stage in class; In MOOC, teachers play the role of course initiators rather than leaders, providing resources as the starting point of knowledge research. It requires learners to have an excellent independent learning skill. Learners spontaneously communicate and collaborate with each other through self-regulation and construct learning networks. They can also use various social media tools to carry out interactive learning.

This is the opportunity brought by technology to education and teaching reform, and it also poses a challenge to education and teaching reform. In education and teaching reform, the following problems must be clarified to avoid putting the cart before the horse.

4.1 The relationship between technology and education

There is a necessary connection between technology and education. They integrate and promote each other. At the same time, they restrict each other and are relatively independent. However, it must be made clear that education is the subject and technology is the means in the reform of education and teaching. Technology changes education in terms of teaching content, teaching methods, etc. However, technology cannot change the nature of education. Education uses technology to provide learners with comprehensive, systematic and scientific knowledge in the most effective way. Learners can choose the most effective way to learn knowledge according to their own needs. In this transformation process, the technology must be used according to the actual situation of education. We understand the role of technology rationally, and avoid irrational worship of technology.

4.2 The relationship between traditional education and online education

Although traditional education has many problems, it still plays an irreplaceable role in every learner's educational history. Traditional education has certain advantages in planning, controllability and interactivity. Under the influence of new technologies such as the Internet and facing the challenges of online education, traditional education needs to integrate new technologies with existing advantages and combine them organically with online education. Through integration, optimization and reconstruction, traditional education should realize the effective integration of online and offline education to complement each other's advantages, share each other's resources and achieve the win-win situation. The reform should provide learners with more high-quality and efficient learning guidance and experience, and achieve the core goal of "everyone can learn, learn everywhere, and learn at all times".

4.3 The relationship between traditional teaching and online teaching

Traditional teaching is dominated by teaching content. Teachers are the main body of teaching and active constructors of knowledge instruction. Students are the subject of learning and active constructors of knowledge acquisition. Teachers and students promote their own progress and realize the benefit of teaching for both teachers and students through their interaction in teaching activities. In the network teaching, the teacher is no longer the only owner of knowledge, and is no longer a simple educational initiator. On the contrary, students in many ways are the owner of knowledge and initiator of education. In network teaching, the roles of the same person are interchangeable randomly. Sometimes they can be teachers, sometimes they can be learners, even initiators of education or organizers. In network teaching, individual value can be given full play. The relationship between people in network teaching is a cellular network topology. What network teaching brings is a learning era when learning is the main body. However, this does not mean that online teaching will replace traditional teaching. In everyone's education and growth, learning guidance is still needed. Through learning guidance, learners can further complete their learning experience, and their knowledge acquisition will be more effective.

5. Conclusion

In general, educational informatization brings opportunities as well as challenges to education and teaching reform. In order to promote the better development of education, the reform of education and teaching should not only make good use of opportunities, but also face challenges rationally.

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