

Research on the Development Strategy of Infrastructure in the Educational Informatization

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Abstract: Infrastructure is the material basis and primary condition for realizing the development strategy of educational informatization, which is concerned by governments all over the world. Through the comparison of domestic and foreign cases, China's infrastructure in the educational informatization is lack of systematic thinking and other problems. Firstly, this paper analyzes the development of educational informatization in China. And then, this paper compares the development strategy of infrastructure in the educational informatization between China and the United States. Finally, some suggestions are put forward to solve the problems in the infrastructure construction of educational information. It is expected to lay a foundation for the scientific, healthy and sustainable development of educational informatization.

1. Introduction

Education informatization is an important direction and goal of China's education reform, but the weakness of infrastructure construction will restrict the education informatization development. So, it is necessary to study the development strategy of infrastructure in the educational informatization. With the implementation of "Internet + education", educational informatization has been highly valued by all aspects and become an indispensable and important part of the education system. Educational informationization has promoted the innovation of educational mode and played an important supporting role in the construction of diversified teaching system. In April 2018, the ministry of education officially released the "education informatization 2.0 action plan", which put China's education informatization on the track of innovative development. There are still many weak links in the infrastructure construction of education informatization. We need to construct the development strategy of education informatization infrastructure with systematic thinking and innovative ideas. Only in this way, can we lay a solid foundation for the scientific, healthy and sustainable development of educational informatization.

2. The development of educational informatization in China

2.1 Network convergence

Network convergence will promote convergence of business applications, including convergence of technologies, inter-network connectivity, and convergence of Numbers and addresses. Which

will promote the organic combination of various networks in technology, business applications, markets, terminals, regulatory policies, etc. The development process of "three networks convergence" is shown as the figure 1.

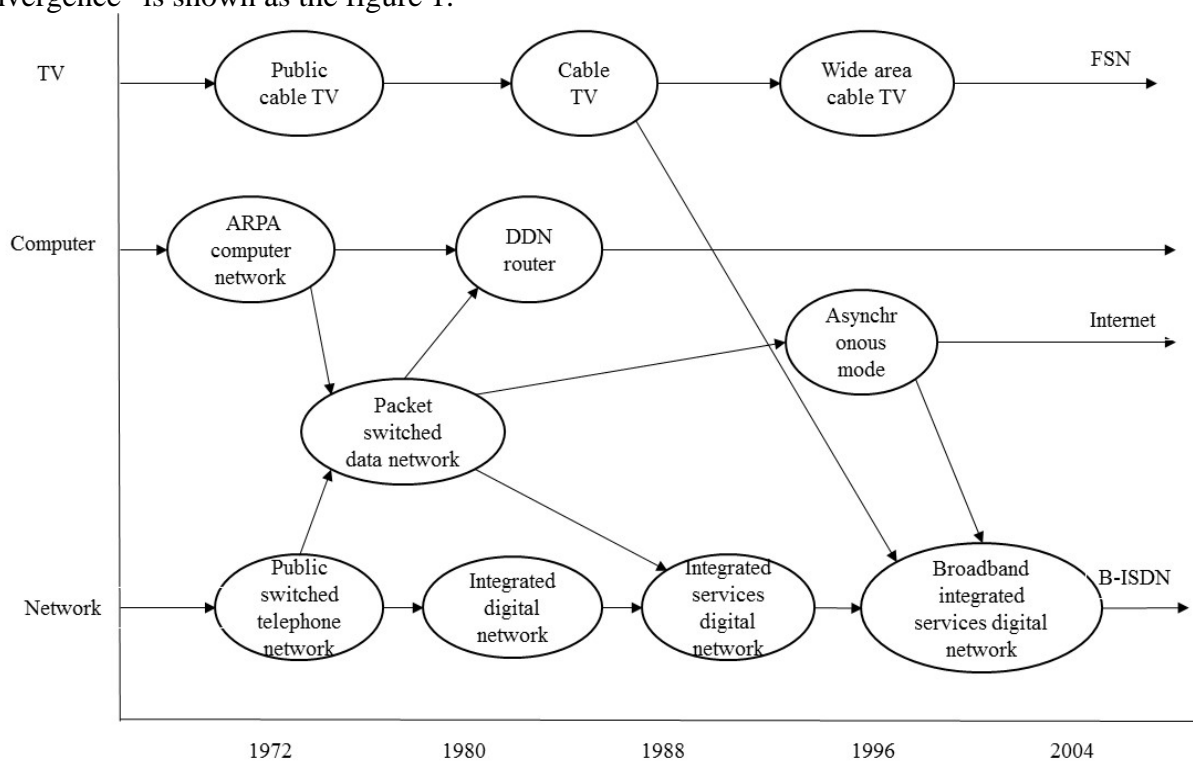


Figure 1: The development process of "three networks convergence"

2.2 The next generation network (NGN)

NGN will be based on packet network, which is based on IP packet network. It supports a variety of business applications and open industry value chain. NGN will attract more enterprises to participate in and provide all kinds of characteristic application, such as value-added service providers. The core of NGN is integration, including business and user terminal.

2.3 Digital home network

In addition to sharing various equipment resources within the home, digital home network can also connect with external network, such as the telecommunication network, Internet, community network, and so on. Digital home network realizes the communication between the internal equipment and the external network. China's communication industry is in a critical period of management system reform. Communication industry will face a series of changes on economic structure reform, management system reform, more intense market competition, and so on.

3. Development of educational information infrastructure

3.1 Development of educational information infrastructure in China

Educational information infrastructure include information environment and hardware facilities, such as computers and related external equipment, other ICT instruments and equipment, computer networks, various education networks, etc. In addition, the hardware infrastructure also includes

related information buildings and related auxiliary equipment. The information environment and hardware facilities are shown as the table 1.

Table 1: The information environment and hardware facilities

Classification	Content	
Information environment	Media classroom, computer classroom, language laboratory, modern educational technology resource library, interactive learning system, campus network system, digital library, digital cinema, etc	
Hardware facilities	Classroom level	Network/non-network computer equipment, digital projection, slide show, voice recorder, digital TV, etc.
	Network level	Gigabit backbone network, 100/1000M secondary access network, network connected equipment, data center server, etc.

3.2 Development of educational information infrastructure in the USA

The United States department of education issued The National Educational plan (NETP) from 1996 to 2010. The trend of infrastructure development in the United States is to first focus on infrastructure construction, and then emphasize the combination of construction and application. The infrastructure is comprehensive, which includes not only broadband connections, servers, software, management systems and management tools, but also personnel, processes, learning resources, policies and sustainable development models. Infrastructure is not simply buying more computers and servers, but also requires cooperation from all sides.

The infrastructure construction goals in NETP is shown as the table 2.

Table 2: The infrastructure construction goals in NETP

Time	Goals
NETP1996	All classrooms are equipped with computers;
NETP2000	All can use information technology in classrooms, schools;
NETP2004	Encourage the use of broadband networks;
NETP2010	Broadband is everywhere.

4. Development strategy of infrastructure in the educational informatization

4.1 Construction content: from "digital campus" to "smart campus"

When the education informationization construction in the world has started to move towards the stage of integrated innovation, China is still in the preliminary application stage. Although China has been paying more attention to the construction of multimedia classroom, computer classroom, electronic whiteboard, computer, network and other information environment and hardware facilities, China is still significantly backward compared with the international level. China has always attached great importance to the construction of digital campus, but it has generated and accumulated some new phenomena and problems. Educational informationization has clearly presented the characteristics of intelligence, openness, personalization and socialization. So, there is a strong demand for building "smart campus" in China based on the development of international smart education. China's infrastructure construction needs to shift from the "digital campus" to the "smart campus". The construction of the "smart campus" environment which is serving for wisdom education will introduce and develop new key technologies.

4.2 Promoting sharing infrastructure development

Education informationization is not isolated, it is necessary to build an open, interactive and sharing education informationization platform. Only in this way, the overall function of educational informatization has achieved a major breakthrough. The state shall vigorously strengthen the construction of educational informatization sharing platform, which will gather national educational resources into the educational informatization sharing platform. The platform can not only promote the effective utilization of educational resources, but also reduce the overall development cost of educational informatization. We must increase the educational information infrastructure, especially the integration of network technology, information technology, telecommunication technology and computer technology. Only in this way, can we build the "expressway" of educational informatization.

5. Conclusions

Although the construction of educational informationization in China has achieved some results, there are some problems in the application of practical information technology. The government needs to mobilize social input and support, which will ensure that schools can have sufficient funds for turnover in the construction of information infrastructure. Only by effectively expanding the coverage area of the network, can we make full use of the network resources.

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References

- [1] Li daqiang. Deepening application, integration and innovation, promoting education modernization with educational informatization [J]. *Research on curriculum and textbook teaching: educational research*,2018(4):3-4.
- [2] Zhang deling. The role of information technology in the overall informatization development of education under the background of "Internet +" [J]. *China new communication & information technology*, 2008,(16):93.
- [3] Quan guolong, Gu xiaoqing. Observation on the "informatization" of education facing wisdom education [J]. *China audio-visual education*,2018(8):35-44.
- [4] Jiao jianli, Jia yimin. Macro policy and strategy research on education informatization [J]. *Journal of distance education*,2014,32(1):25-32.