

Investigation and Research on the Construction of Basic Education Information Environment

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Abstract: With the deepening development of education informationization, the monitoring and evaluation of the development level of education informatization is not only the need of education modernization construction and assessment, but also the need of education informationization construction science. Based on the literature research, this research builds "the evaluation index system of education informatization environment construction", investigates and studies the present situation of informatization environment construction of elementary education, and systematically analyzes the current situation and existing problems in the construction of informatization environment of basic education. Education information evaluation index system to provide theoretical guidance, and put forward the education information to deepen the development of countermeasures and suggestions.

1. Introduction

Educational informationization is a profound change in educational philosophy and teaching mode. It is an effective measure to promote fair education and improve the quality of education. It is the only way to achieve lifelong education and build a learning society [1]. Our government attaches great importance to the construction of education informationization and has successively promulgated a series of policy documents and norms to promote and promote the development of education informationization. In 2012, the Ministry of Education formulated the "Ten-year Development Plan for Education Informationization of the Ministry of Education (2011-2020)". It also explicitly states that education informationization should be fully deployed as a strategic focus and priority area of national informatization, speed up implementation and promote Scientific Development of Education. We will step up information infrastructure and capacity building for all types of schools at all levels and focus on supporting the construction of school information infrastructure in the central and western regions, remote areas and poor areas [2]. With the in-depth implementation of the national "three links and two platforms" project, the effectiveness of the implementation of the project and how to evaluate the effectiveness and adaptability of the project in terms of environment construction and resource allocation in education informatization have become the deepening of education informationization the important content.

2. The Construction of Basic Education Information Environment Evaluation Index System

The evaluation index system of educational informatization has always been a hot issue at home and abroad. StaR Educational Informatization Assessment Tool [3] proposed by the CEO Forum of the United States Educational Technology, including hardware and network connectivity, teacher professional development, digital resources, student achievement and assessment. The UK Education, Communications and Technology Agency SRF assessment framework includes leadership and management, curriculum, learning and teaching, evaluation, teacher professional development, opportunities for expanded learning, resources, and academic performance of students [4]. The evaluation of Korean educational informatization is characterized by its emphasis on the evaluation of students' ability to learn informatization. The evaluation elements include

infrastructure, resource development and sharing, informatization of teaching activities, informatization of administrative management, informatization of academic research, teaching and learning research information database construction [5]. In August 2015, the Ministry of Education issued the "Statistical Indicator System for Education Monitoring and Evaluation in China" and added the content of "education informatization". The number of teaching terminals (computers) per hundred students (computers / units) was set up to establish a campus network School Percentage (%), School Access to the Internet (%), Average School Access Internet Outbound Bandwidth (Mbps / School), Student Average Number of Students (GB / , The average number of online courses (doors / school), the number of information technology-related trainings per hundred full-time teachers (persons / hundred), and other aspects of assessment of the construction of school education information [6]. Xie Yueguang (2015) put forward the performance of rural basic education informatization mainly covering information infrastructure construction, including computer equipment, computer classroom construction, multimedia classroom construction, language lab construction, virtual laboratory construction and campus network construction [7]. Wu Di (2014) proposed an education informationization index system that includes five parts of infrastructure, digital educational resources, teaching and learning applications, management informationization, and security mechanisms [8].

On the basis of referring to and referring to the evaluation index of the construction of informatization environment in China and foreign countries, this paper puts forward the "Evaluation Index System of Educational Information Environment Construction" to determine the network access, campus network construction, teacher / student ratio, campus security system, satellite Education programs to accept the system, a variety of classroom terminals / functional classrooms, information technology courses to open and other indicators. Among them, the network access mainly understand the network access methods, access operators, access bandwidth, access costs and other information; the construction of the campus network to understand the main trunk bandwidth, networking, connectivity, construction age, school websites, network center and other information; computer (classroom) configuration mainly understand the computer classroom, vitality ratio, teacher computer configuration, computer network classrooms and so on; campus security system mainly to understand the network installation, monitoring area; satellite educational program acceptance system including configuration time, configure the time; classroom terminal mainly understand the interactive whiteboard, computer + multimedia projector, DVD + TV playback system, video conferencing systems, mobile learning terminals, touch TVs and other information; function classroom mainly understanding of digital music classrooms, classroom recording Broadcast classrooms, digital subject classrooms, voice classrooms and other information. On this basis, the relevant questionnaire is drawn up and the field research is carried out. By using the comprehensive analysis of SPSS17.0, Excel 2007 and so on, the conclusion is drawn.

3. The Major Problems of Basic Education Information Environment Construction

The overall level of development of basic education informatization environment construction is not high, the development of rural grass-roots schools is particularly backward, and there are obvious differences between urban and rural areas. The investment in information construction is unevenly distributed. The funds invested mainly in senior high schools, full high schools, junior high schools and nine-year schools, while the investment in township primary schools, rural primary schools and teaching sites is less.

The more grassroots schools, the construction of hardware facilities, the access to teaching resources and the quality of teachers' ability are worse, the more education funds and resources should be invested. However, the actual situation is just the opposite: grassroots schools (teaching points at all levels, primary schools and towns Central Primary School) accounts for more than 80% of the total number of schools, teachers account for about 50% of the total number of teachers, the number of students accounted for more than 70% of the total number of students, a large number, large-scale. However, in recent years, primary schools have only spent about 35% of the total investment in information construction on the total investment in information technology, with less

financial support and schools themselves unable to obtain financial support from other places, resulting in a more informative construction of education information environment poor, network access rate of 7% of all schools, the vitality ratio is generally above 25: 1, and there are more than 70% of schools can not be fully opened in accordance with the requirements of information technology courses and other issues; more crucially, the hardware environment is more Differences further restrict the development of subject teachers' abilities, teachers can not acquire more knowledge and teaching resources, and their own teaching level is harder to improve, which leads to the teaching quality always stagnating. In addition, the early provision of equipment at primary schools has been phased out, the equipment already equipped in schools has been poorly integrated, and interactiveness has been poor. Teachers' access to various forms of training at all levels has been limited, and access to teaching resources has become more difficult. Urban and rural areas are further increased The gap between the information construction.

At present, among the total investment in basic education informationization in schools, the upper appropriation accounts for 55% of the total appropriation, the self-raised appropriation accounts for 37.6%, the corporate sponsorship or project support only accounts for 7.4%, and most of the schools rely mainly on the appropriation of the educational administration department School information construction. High school, full high school Owing to the large scale of running a school, office expenses are relatively abundant, and each year there can be a certain amount of self-financing into the construction and development of informationization. Rural schools in remote areas are completely dependent on superior appropriations and the main body of construction is too single, did not use market mechanisms and fully mobilized market forces. From the education market perspective, education itself is a big industry. Its scale is measured in billions of billions. The market brought by education informatization or information technology is also huge. On the one hand, there is a huge demand for funds for educational informationization. On the other hand, most schools rely mainly on funding allocated by the educational administration for information construction. This will inevitably lead to the low level of education informationization in most schools due to lack of funding.

Overall, the level of social information is still low, there are very obvious regional differences. In the vast majority of regions, there is very limited access to information technology for families by families and the information technology curriculum in schools will continue to be the main channel of information technology education for a long time. However, the information technology curricula in various regions and schools are not the same: the opening of information technology courses in urban areas is better than that in rural areas; and the opening of information technology courses in high schools is better than that in primary schools. According to the survey, IT courses have been set up in all high schools and junior high schools, but 68.7% of teaching sites and 41.4% of rural primary schools still do not have information technology courses.

There are many kinds of constraints on whether schools can set up information technology courses. Among them, the number of computers and the professional teachers are particularly important. The survey found that the number of professional counterpart teachers is one of the core factors in setting up IT courses in schools. The common feature of all schools that do not have IT courses is that they do not have a professional counterpart and that most schools have IT curriculums when there is at least one professionally trained teacher in the school. With the increase in the number of professionally trained counterparts, information technology The situation of incomplete curriculum is gradually getting better.

The development of educational information is not only the construction of information hardware environment and the allocation of educational resources, but more important is the overall professional development of teachers and the improvement of education and teaching quality. The core elements of improving the quality of basic education are the teachers, the application of new technologies and new methods, the implementation of curriculum reform and so on, all of which need to be realized by teachers. The rapid development of information technology requires teachers to continuously learn new technologies and methods and constantly improve and develop their own overall quality and ability.

The survey found that while vigorously building the hardware environment, it ignored the improvement of the ability of subject teachers in information technology teaching. More than 85% of the total investment in basic education informatization spends less than 10% in hardware construction in terms of software (resource) construction, 5% in teacher training shows that the hardware investment is too high and the software (resource) investment is insufficient, and the teacher A serious lack of training investment status. The investigation on the application ability of subject teachers' information technology found that most subject teachers only understand the concept of informationization teaching, but there are still difficulties in applying the method of informationization teaching in classroom practice, and the teaching ability of information technology is generally low.

4. The Development Proposals to Promote the Basic Education Information Construction

In the process of construction, rural schools should be supported by funding and policies. More attention should be paid to the needs of grassroots schools in terms of hardware, resources and training so as to strengthen the construction of education informatization in grass-root schools. Construction by classification, stratification and step-by-step implementation strategy, adhere to the principle of building on demand, and gradually narrow the digital divide between urban and rural areas, and promote the balanced development of education information. At the same time, considering the need of sustainable development of basic education informatization, it is suggested that relevant policies should be promulgated by the educational administrative department to allow the education department at the county level to co-ordinate a certain proportion of public funds and support the construction cost of informationization and the cost of sustainable development. And according to the number of students in schools, broadband access fees for grading support for the number of students in the school policy of 200 people all assume access costs, with the increase in the number of school students, gradually reduce the proportion of support.

In the process of actual construction, we adopt different construction models and diversified construction entities to fully mobilize the forces of all parties, promote the construction and implementation of basic education and deepen the development of basic education informatization. Give full play to market forces, the introduction of information technology companies capital and technology advantages, take the "government-led, enterprises and social forces to participate in, school applications, service-driven" building model. On the basis of full investigation and research, the educational administration departments at all levels should formulate a plan for the development of education informatization that is scientific, feasible and in line with the actual conditions in the region, and clearly define the direction of development and development. Schools should transform their own input and their own construction, self-management, self-maintenance and self-use ". The enterprises invest in building platforms and providing services, and the schools purchase services to obtain the right to use the platform and space, and promote the overall advancement of informationization in schools. Government departments should provide policy support, which should be invested by enterprises and continued to be used by schools. A new mechanism of "competition, government access and self-selection" should be adopted to form a pattern of complementary advantages among enterprises, schools and social organizations and promote "broadband network schools pass, high-quality resources class classes pass, network learning space for all "the overall advancement. In addition, we should make full use of the central government's financial allocation and all kinds of foundation project investment, scientific planning, rational distribution, step by step, and gradually achieve the general goal of building basic education information.

In the process of building basic education informationization, we should encourage graduates of computer and education technology to work in the grassroots level by encouraging graduates to acquire information technology education qualifications such as training and examinations, and so on, so as to promote gradual progress of professional counterpart teachers permeation of schools in rural areas, strengthening teaching points, rural primary school information technology professional counterpart teacher configuration and ownership rate. On the basis of ensuring the availability of

information technology courses, we should gradually improve the teaching quality of information technology courses, cultivate students 'interest and awareness of information technology, cultivate students' good information literacy and gradually improve the quality of information technology courses.

According to the actual situation and actual needs, we should build a three-level resource system at the provincial, county and school levels, carry out resource construction work in a hierarchical and focused manner and with a targeted manner, avoid duplication and low-level construction, and gradually improve the system of basic education information resources construction. The focus of provincial-level resource construction should be put on the building of universal resources. By investigating and clarifying the specific content and framework for province-level sharing of high-quality resources, as well as avoiding duplication of resources for county-level and school-based education, substantial savings will be made in educational informatization invest funds. On the basis of this, we should integrate forces in all fields such as universities, audio-visual education centers, teaching and research institutes, network centers, IT companies and software development companies to coordinate the development. We should build a strong and specific education system that is closely related to the reform and development of basic education resources and environment and interactive platform environment for the development of basic education to provide effective support services. At the district and county levels, the construction should be focused on the effective utilization of resources and the acquisition and use of teachers' effective resources, and some special resources should be developed in combination with the construction of local curricula and school-based curricula. Provide schools and teachers in the region with a link library of educational resources so that teachers can get the educational resources they need quickly and easily. Each school should build a school-based and effective resource and environment construction, give full play to the teaching research group and subject teachers in schools, rapidly promote the application of informationized teaching modes and methods in teaching, and achieve the goal of encouraging schools and teachers to effectively integrate information resources into teaching. Enrich the construction of school-based information resources.

In the type of resource construction, flourishing, eclectic, to meet the different types of teachers at different types of needs. At the same time, we should pay attention to the effective sharing and efficient use of resources so as to ensure that all primary and secondary schools, especially schools in rural areas can make timely use of resources so that teachers and students in remote and impoverished areas can also share public resources.

The development of educational information is not only the construction of information hardware environment and the allocation of educational resources, but more important is the overall professional development of teachers and the improvement of education and teaching quality. The core elements of improving the quality of basic education are the teachers, the application of new technologies and new methods, the implementation of curriculum reform and so on, all of which need to be realized by teachers. The rapid development of information technology requires teachers to continuously learn new techniques and methods and improve continuously

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