

Exploration of Network Management Methods in Higher Vocational Computer Education

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Abstract: With the rapid development of information technology, higher vocational computer education is gradually turning to network management to meet the needs of the information age. This paper describes the importance of network management in higher vocational computer education. The analysis of the status quo of network management reveals the problems of lagging in management mode, the low application rate of computer networks, and the constraints of traditional teaching. In response to these problems, suggestions and discussions are put forward, including strengthening the construction of network infrastructure, improving the network management mechanism, etc., to promote education management towards a more advanced and flexible network direction.

Keywords: Higher computer education; Network management; Optimization measures

Online publication: September 2, 2024

1. Introduction

In today's information age, the development and management of higher vocational computer education is ushering in a profound change, and network management, as an innovative education management tool, is receiving more attention for its efficient and flexible characteristics. With the popularization of Internet technology, the traditional teaching mode is facing challenges, and network management has gradually become an important engine for promoting higher vocational computer education into modernization. The emergence of network management provides a broader development space for higher vocational computer education but still faces many problems and challenges in practical application. This paper aims to analyze the value and limitations of network management in education, to provide theoretical guidance for the innovation of higher vocational computer education management.

2. Significance of network management in higher vocational computer education

The significance of network management in higher vocational computer education lies in introducing advanced technical means for the education system to enhance management effectiveness and stimulate teaching vitality.

Firstly, through the construction of an online teaching platform, students can access learning resources anytime and anywhere. Teachers can flexibly arrange the teaching content to achieve the sharing and optimal use of educational resources, which not only meets the diversified learning needs of students but also meets the requirements of teachers' personalized teaching. This promotes education to be closer to the students.

Secondly, the network management of higher vocational computer education helps to improve the quality of teaching. The construction of an online teaching platform makes the teaching process more interactive where students can understand the knowledge more deeply through multimedia and interactive discussion. Personalized student information management and counseling mechanisms can better meet students' differences and help them better develop their potential ^[1]. Teachers in the network environment can also better monitor student learning, adjust teaching strategies promptly, provide targeted guidance, and thus effectively improve teaching.

Thirdly, network management brings a broader development space for higher vocational computer education, through the establishment of online communities, cooperative projects, and other forms, students can cross more fields and acquire a wider range of knowledge. Teachers are also able to carry out professional exchanges and collaborative research through the network platform, which effectively promotes personal growth ^[2].

3. Problems of network management in higher vocational computer education

3.1. Backward management mode

The traditional centralized and linear management mode leads to low management efficiency and lagging information transmission, which cannot adapt to the rapid development of higher vocational computer education, making the teaching content fall behind, inefficient use of educational resources, difficulty coping with the diversity of students' needs, and restricting the flexibility and real-time nature of the education system.

Additionally, the insufficiency of technical facilities and infrastructural equipment is also a prominent problem, affecting the smooth implementation of network management. Schools may face information security hazards in the process of network management and lack effective network security mechanisms. Simultaneously, the training and adaptation problems of teachers and students in the network environment need to be solved urgently, which leads to the resistance of some teachers to network management and affects the promotion of the management mode.

Comprehensively speaking, the lagging problem of network management of higher vocational computer education involves multiple levels such as management mode, technical equipment, information security, and personnel training, hence requires comprehensive measures to promote the modernization and upgrading of the education management mode ^[3].

3.2. Low application rate of computer network

Although the rapid development of information technology provides advanced tools for network management, the application of computer networks has not given full play to its potential in the field of higher computer education. Some colleges and universities have deficiencies in network infrastructure construction, leading to problems such as insufficient network bandwidth and network delays, which affect the effectiveness of network applications. Some educational institutions have not invested enough in teacher training and student adaptation, so the use of computer networks has not been widely promoted, and there are differences in educators' knowledge and understanding of network applications, resulting in some educational resources still being delivered traditionally and failing to be effectively integrated into the network environment.

In addition, the utilization rate of computer networks by students is relatively low, and some teaching

contents still exist in traditional paper form, failing to fully enjoy the convenience brought by network management. Therefore, the problem of low utilization of computer networks involves both the level of infrastructure and the knowledge and utilization of network technology. To solve this problem, it is necessary to increase investment in network infrastructure construction, improve the quality of the network, and at the same time carry out training for teachers and students to enhance their knowledge and enthusiasm for computer network applications ^[4].

3.3. Binding of traditional teaching mode

The traditional teaching mode is still dominant in higher vocational computer education, which leads to a series of management constraints. Firstly, the traditional mode emphasizes face-to-face teaching communication and ignores the potential advantages of online learning platforms. This limits the extensive sharing of teaching resources and satisfying students' diverse needs, making it impossible for network management to utilize its flexibility.

Secondly, the traditional mode of classroom teaching is teacher-centered, and the pattern of students as passive recipients has not yet been fundamentally changed. This teaching mode makes it difficult for network management to realize personalized and targeted teaching, which hinders students' better development in the network environment.

Lastly, some educators still have dependence and preference for traditional teaching, and a lack of understanding and acceptance of the emerging network management model, making the process of promoting network management subject to internal resistance. Therefore, the problem of the binding of traditional teaching mode involves not only the reform of teaching methods but also the updating of educators' cognition and concepts ^[5].

3.4. Shortage of funds and lack of standardized construction

Network management requires a large amount of funds for information technology infrastructure construction, network platform construction, and other aspects of investment, but some higher vocational schools face the problem of insufficient funds, resulting in network management not being fully developed. Moreover, the lack of effective normative construction is also a prominent problem. In the process of network management, the lack of clear policies, regulations, and management standards makes it difficult for educational institutions to form unified standards and norms in the implementation of network management, and there is management confusion and uncertainty, which not only affects the smooth promotion of network management but also increases the management burden of educational institutions. Therefore, the problems of shortage of funds and lack of standardized construction not only limit the development speed of network management but also constrain its full promotion in the field of higher computer education. To solve this problem, it is necessary to start from various aspects, such as policy and economy, to increase the financial support for network management, and at the same time to establish clear management policies and norms, to make it develop in a more orderly way in higher vocational computer education ^[6].

4. Higher vocational computer education network management methods

4.1. Strengthen network infrastructure construction

The effective implementation of network management in higher vocational computer education cannot be separated from the support of a perfect network infrastructure, which is the cornerstone of the entire network management system. It is crucial for promoting information transfer, resource sharing, and teaching innovation.

Therefore, colleges and universities first need to increase financial investment to strengthen the hardware upgrade of network infrastructure. Schools should be committed to upgrading network bandwidth and updating network equipment to ensure a high-speed and stable network transmission environment.

Moreover, they should strengthen the maintenance and management of network facilities, regularly check the operating conditions of the equipment, discover and solve potential problems in advance, and guarantee the reliability of the network. Concurrently, promotes the expansion of network coverage, solves the problem of insufficient network coverage through cooperation and investment, and ensures that all students can enjoy network resources equally.

Furthermore, diversified network services should be provided in response to the differences in students' equipment. Encourage students to use various types of terminal devices and establish a multi-platform-compatible network environment to meet the needs of different students. In practical application, the application of cloud computing and other technologies can be promoted to reduce the degree of dependence of student devices on network infrastructure and improve the efficiency of network utilization.

Comprehensively speaking, to strengthen the network infrastructure construction of network management in higher vocational computer education, it is necessary to take effective measures to solve the problems of insufficient network bandwidth, old equipment, and insufficient network coverage under the guidance of theory. By comprehensively upgrading the network infrastructure and ensuring that it adapts to the needs of modern online education, it is possible to better promote higher vocational computer education towards the goal of network management steadily^[7].

4.2. Improve the network management mechanism

In higher vocational computer education, the construction of a perfect network management mechanism is the key to achieving efficient teaching and student development. Network management mechanisms should be an organic system, including information management, teaching resource sharing, student assessment, and other aspects. Theoretically, the network management mechanism should be highly flexible and operable to adapt to different disciplines, student groups, and teaching needs. The core concept of network management should be clarified, i.e., integrating teaching resources, optimizing the teaching environment, and promoting information sharing through scientific and technological means to realize the efficient operation of education and teaching.

On this basis, the following measures can be formulated to improve the network management mechanism of higher vocational computer education. The first is the establishment of a perfect network infrastructure is the cornerstone of network management. Schools should increase investment to improve campus network bandwidth and equipment performance to ensure that students and teachers have unimpeded access to network resources. At the same time, advanced network technologies are adopted to guarantee the stability and security of the network to cope with the growing demand for online education.

The second is to build a unified teaching management platform and integrate teaching resources. Through the construction of a unified teaching management system, all kinds of educational resources are integrated into one platform, including teaching materials, courseware, experimental materials, etc., to improve the efficiency of resource utilization, and at the same time, facilitate students and teachers' rapid access to the information they need, and promote the updating and sharing of teaching content.

The third is to strengthen the training and support of teachers. Schools should regularly organize teachers to participate in online education training to improve their information technology level and online teaching ability. At the same time, a professional technical support team should be established to solve the technical problems encountered by teachers in online teaching promptly, to ensure the smooth progress of the teaching process.

The fourth is to focus on the assessment and improvement of network management. Establish a perfect assessment mechanism to regularly assess the various tasks of network management to understand the actual situation of education and teaching, and then adjust and improve the mechanism promptly according to the assessment results to keep abreast of the times ^[8].

4.3. Improve teachers' and students' awareness of network management

Network management should emphasize the initiative of the educational subject, i.e. to further improve teachers' and students' awareness of network management by cultivating their awareness of network management and promoting their better use of network resources for teaching and learning.

Firstly, carry out specialized training on network management. Schools can organize regular network management training to enhance teachers' and students' network literacy. The training covers the effective use of network resources, knowledge of network security, online collaboration skills, etc., so that they can use network tools for teaching and learning more skillfully.

Secondly, establish an incentive mechanism oriented to network management. Schools can set up relevant incentive mechanisms to encourage teachers and students to actively participate in the online teaching environment, share excellent teaching cases and learning experiences, stimulate their awareness of network management, and promote their more active integration into online education.

Thirdly, strengthen network security education. Cultivating teachers' and students' attention to network security not only helps to protect personal information but also improves the smooth operation of network teaching. Schools can organize cybersecurity knowledge training to educate them on how to prevent cyber risks and safeguard the security of online teaching.

Lastly, promote online collaboration and interaction. By introducing online collaboration tools and platforms, schools can promote interaction and cooperation between teachers and students. Teachers can use online platforms to release teaching resources, while students can use online collaboration tools to conduct group discussions and joint learning, thus enhancing their awareness of network management ^[9].

4.4. Strengthening network security management

In the network management of higher vocational computer education, network security is the basis for guaranteeing the normal operation of the education system and the security of students' personal information. Therefore, the school should formulate a clear network security policy to regulate the collection, storage, and transmission of educational information, as well as stipulate the code of conduct for teachers and students in the use of the network and clarify the division of responsibility for network security to ensure the safety and stability of the network education environment.

Carry out network security awareness training to enable teachers and students to understand basic security knowledge such as network threats, password management, identity authentication, etc. The training should also include the identification and prevention of network attacks to improve their ability to protect themselves in the network environment. Schools should regularly update and maintain network equipment and operating systems, patch security holes promptly, and ensure the stability and security of the network infrastructure. At the same time, technical means such as firewalls and intrusion detection systems are used to strengthen real-time monitoring and prevention of the network. For the collection, storage, and transmission of educational information, schools should establish a scientific data encryption mechanism to protect the personal privacy of students and teachers. Establish a complete backup system to cope with threats to educational data from unexpected events. Set up a professional network security team responsible for emergency response and

disposal of network attacks. Develop a detailed process for handling cybersecurity incidents to ensure that cyber threats can be handled quickly and in an orderly manner when they occur^[10].

5. Conclusion

The information age has brought significant development opportunities for higher vocational computer education, and the level of network management can be further optimized through measures such as strengthening the construction of network infrastructure and improving the network management mechanism. On this basis, the government, schools, and enterprises should strengthen cooperation and jointly promote the modernization of higher vocational computer education, and through joint efforts, build a more open and flexible network management mode, lay a solid foundation for cultivating more innovative and resilient computer professionals, and promote higher vocational computer education to a brighter future.

Disclosure statement

The author declares no conflict of interest.

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