

The Application of Two-dimensional Code Technology in the Student Status File Management of Continuing Education

Jiyu Li

Training Section, School of Continuing Education, Guangxi Medical University, 530021

Abstract: Two-dimensional code technology is a more mature identification technology in the current information age. Its large-capacity information storage technology can be applied to the student status file management of continuing education, which can greatly improve the efficiency of the student status file management of continuing education. This paper first analyzes the feasibility of two-dimensional code technology in the student status file management of continuing education, and expounds the advantages of two-dimensional code technology applied in the student status file management of continuing education, and finally explores the risks and challenges faced by two-dimensional code technology in the student status file management of continuing education and the solutions. The purpose of this paper is to promote the application of two-dimensional code technology in the student status file management of continuing education in terms of safety, accuracy and efficiency.

Keywords: Student status file; Management applications; Two-dimensional code technology

Two-dimensional code is a type of bar code that records data symbol information using a specific geometric figure distributed in a plane with black and white patterns according to a certain pattern^[1]. At present, the widely used two-dimensional code is QR code, the full name is quick response. Its main advantages are the huge amount of information it contains, its easy identification and low cost. It is widely used in the current society. The two-dimensional code mainly relies on the new photoelectric information technology, which utilizes the concept of bitstream to arrange text, numbers, and other data character information on a plane in black and white check at two horizontal and vertical angles according to a certain geometric structure and the plan^[2]. The “1” and “0” in computer language represent black and white dots respectively. The composed graphics can be easily recognized by the image recognition device on the user’s mobile device, and the information content can be shared quickly. The QR code used in the information construction of student status file is suitable for Chinese character coding and can be directly identified by smart phones. The two-dimensional code technology should be fully utilized in the management of student status file of continuing education to provide true, accurate and safe management and utilization.

1. Feasibility Analysis of Introducing Two-dimensional Code Technology into Student Status File Management of Continuing Education

1.1 Good network environment

By 2022, the penetration rate of smart phones in China has exceeded 66%. With the wide application of a new generation of new technologies, the number of smart phone users is increasing day by day in China. Ordinary people have had a habit to use two-dimensional code to shop, read, make or receive payments, add friends and obtain information, which provides a good condition for the application of two-dimensional code in the student status file management of continuing education.

1.2 The characteristics of two-dimensional code technology

Firstly, it is not difficult to apply two-dimensional code technology in the student status file management of continuing education. Compared with the magnetic card, IC card and other storage methods, it is of low technical difficulty, low development difficulty, which makes the application of two-dimensional code technology in the student status file management more advantageous; Secondly, the

information content of two-dimensional code is huge, which is far more than that of one-dimensional code. Two-dimensional code can easily store the text information in the materials of student status file. Two-dimensional code can also put anti-counterfeiting information into the bar code, which is convenient for people to identify the authenticity of student status. Finally, two-dimensional code technology has the advantages of low development cost, large information storage and low maintenance difficulty. At the same time, it also has the advantages of wide coding range and low fault tolerance rate. The maturity and convenience of two-dimensional code technology greatly increase the feasibility of its application in the student status file management of continuing education.

1.3 The application practice of two-dimensional code technology

With the introduction of two-dimensional code technology, the two-dimensional code can be placed in the upper right corner or the blank of the student status file materials of continuing education, and the information of the student status file materials formed in the process of continuing education can be compiled into the two-dimensional code in chronological order, and the corresponding entry directory can be set up. To develop a two-dimensional code information system for student status files of continuing education should firstly input the information of each student in continuing education into the archival management system and create a database of student status information, and then generate an independent two-dimensional code. The information database of continuing education students created should contain basic information such as name, gender, residence registration, ID number, detailed family address, family members, personal history, etc.

2. The Advantages of Two-dimensional Code Technology Applied to the Management of Student Status File

2.1 Ensure the authenticity of the source of student status file materials

The formation time of student status file of continuing education is long, generally 2-3 years. After graduation, the "file goes with the student". The transfer of school status file is very normal. However, because of the restrictions of academic qualifications, some people take risks and fake through various improper ways for job promotion, title evaluation and employment, job transfer, etc., in order to muddle through the process of circulation and review, which brings some difficulties to the organizational personnel department in the process of selecting and employing people.

2.2 Improve the Standardization of the Process Management of student status file

The student status file of continuing education is to record, assess and evaluate the quality of the students' learning and performance in all aspects in stages and through the whole course according to the regulations. And it is to control and record the enrollment, graduation, and changes in student status of students in accordance with the requirements of relevant regulations, including enrollment roster, enrollment registration sheet, student status table, students' transcript, student status change materials, reward and punishment materials, graduation, completion, and materials about study at college, etc. Traditional procedures for the management and utilization of continuing education student status file are complicated, and often result in separation of departments and management departments. If two-dimensional code technology is applied to the dynamic management of student status file, the information of students' files can be viewed by scanning codes through mobile devices, which will avoid the repeated verification of the original carrier documents and materials, and effectively improve the efficiency of dynamic management of the process.

2.3 Ensure the safety of the management of student status file

The application of two-dimensional code technology in the student status file management of continuing education can improve the security of school status information. In the daily student status file management of continuing education, the contents of the school status are wide, the formation time is long, there will be many difficulties in the collection and sorting process. These situations occasionally occur, such as incomplete collection of the original documents of the school status, or the lack of corresponding content. Thus, it is difficult for the responsible personnel of the school status management of continuing education to ensure that each school status material is intact. If the two-dimensional code is applied to the whole process of the school status management of continuing education, the problems of untrue content, incomplete collection and insecure storage of student status file can be fundamentally solved, so as to protect the original files and the completeness of files.

3. The Challenges Faced by Two-dimensional Code Technology in the Student Status Management of Continuing Education and the Solutions

3.1 Faced Challenge

3.1.1 There is a risk of two-dimensional leakage

The two-dimensional code is placed on the cover or blank of the important materials of each student status file, and which includes all the information of the student status materials. In the work of the utilization of school status, the two-dimensional code in each file is an ordinary pattern, and the recognition is not high. At the same time, the management personnel and users of school status files are usually not aware of the security risks of two-dimensional code, and there are also information security risks while convenient management. If this small two-dimensional code is obtained by criminals through illegal means, it will result in the leakage of all information in the student status file materials, which may lead to the occurrence of adverse events.

3.1.2 The defects of two-dimensional code technology

At present, the defects of using two-dimensional code technology to store information are mainly reflected in the following two aspects: On the one hand, two-dimensional code is easy to carry virus code, and there are a lot of information of school status file in two-dimensional code that can also store viruses, illegal links, etc. It is difficult to identify illegal information from the surface in daily work; On the other hand, there are risks in the process of one-way information interaction. At present, two-dimensional code technology can only realize one-way information transmission, that is, when criminals engage in information hijacking, they only need to achieve one-way verification between the user and the archives, as well as between the archives and the backend to obtain information. Hijacking and information security problems generated in this process are difficult to be known by users at the first time. It is also a major challenge that the security issue of information hijacking arising from this process.

3.2 The solutions

3.2.1 Set watermarking function

The two-dimensional code digital watermarking function is added to the school status file management system. When scanning the two-dimensional code, the basic information of the person who queries the files and the archival management personnel can be displayed, as well as the creator or responsible person of the school status file. The digital watermarking function can real-time monitor the user's operation record, access time and printing behavior, and add permission settings for the person who queries the files and query processes. It realizes the record of the whole process of file borrowing and use, and adds a security line for the application of two-dimensional code technology to school status file, which can greatly improve the safety factor of the school status file management of continuing education.

3.2.2 Enhance the security of two-dimensional code technology

Firstly, in the development of the two-dimensional code of school status file, we should strengthen the supervision of the two-dimensional code production, establish a security monitoring and evaluation mechanism for the development of two-dimensional code and the backend of the school status file management system of continuing education, review it in a strictly confidential manner, and regularly entrust a third party to carry out two-dimensional code stability testing. The second is to strengthen the verification steps of the management platform of the school status file management system to ensure the security of information in the one-way transmission process, which only allows continuing education managers who can identify two-dimensional code equipment to use the school status file, and does not allow other personnel to query and access the relevant information of the school status file, in order to prevent the emergence of third-party access in a timely manner. The above two ways are used to deal with the defects of two-dimensional code in practical application to improve the security of two-dimensional code technology.

Conclusion:

To sum up, the application of two-dimensional code technology in the school status file management of continuing education can greatly improve work efficiency, reduce labor costs, standardize the management of school status file materials to form a full lifecycle management, and ensure the authenticity, integrity and safety of the school status file management of continuing education. In the future application practice, relying on digital network technology and artificial intelligence technology, we will strengthen efforts to solve the problems in the application of two-dimensional code technology to the school status file management of continuing education, comprehensively promote the transformation and upgrading of the school status file management of continuing education, which have practical guiding significance for the school status file management of continuing education under the widespread application of new generation information technology.

References:

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