

An Archives Utilization Platform Based-cloud and Big-data Technology for Universities' Students in Sino-foreign Cooperative Education

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Abstract. With the developing of clouds-computing and big-data technology in current ages and opening to the world in education of CHINA, there was a realistic and urgent problem that faced by colleges and universities' Archives Administration Department: how to effectively manage, utilize, and provide service of archived records for foreign colleges and universities? The two main reasons for the above question were the expended scale of Sino-foreign cooperative education; as well as the increasing number of students enrolled in domestic university going abroad afterwards. This article discussed a structure of students' archive system within the above background; in order to set a model of connection between students' archive utilization system and foreign institutions, also provide beneficial for domestic colleges and universities' Archives Administration Department.

1. Introduction

Due to the expended scale of Sino-foreign cooperative education and the increasing number of students who joined these programs, how to effectively manage and utilize archived records for foreign colleges and universities, in order to provide professional services for students, is a new question that faced by colleges and universities' Archives Administration Department.

This question mainly reflects in two points: firstly, the archive utilization system for Sino-foreign cooperative education was time-based. For the students who enrolled into Sino-foreign cooperative education, except some students who gave up the opportunity of studying aboard, most of students would go overseas. The students who went overseas normally would study one to two years after passing their English language exams. Because the application for foreign university was time-based, there was a huge difference between peak season and slack season for current students' archive utilization and archive services. During the peak season, the scale of student archive's query, search, certification, copy and print will be dramatically increasing; on the other hand, the scale will be shrink sharply. Therefore, the Archives Administration Department in colleges or universities have typical seasonality

In another point of view, most of universities set up archives administration work in secondary college office, rather than having a specific post and employing professional administrator [1,2,3,4], The common working mode was hiring part-time administrator in each secondary colleges and to be responsible for archive searching, archive utilizing, and archive servicing. The professional administrators are responsible for training part-time administrators as well as monitoring archived records. As a result, there were huge pressure, that providing convenient, timely, accurate, evidenced archive services, on the back of part-time administrators in secondary colleges. Using archives utilization platform based on modern network, digitization, movement can relieve this situation assuredly.

There was a progressing development for college or universities' students archive utilization system. The process starting from traditional manual searching to modern internet searching, and now moving on to totally digital system. The way of managing archived records were improving step by step; however, the way of utilizing archived records were still out of date. It was not able to satisfy the

demands of efficiency, convenience and credential ability for students who need archive services. The main reason for this situation was incompleteness of archive utilization platform. Current situation is focusing on the archive management building but lack of the support of archive utilization and archives service from digitized technology and application based on network, which make archive service worker providing archive utilization service lack effective and efficient methods. Archives utilization platform is infrastructure of achieving archives utilization value [5] and supporting archives service. The performance of archive utilization and services depends on the methods – manually, semi-manually, internet based, or digitalized. If there is a comprehensive archive utilization platform settled in colleges and universities that hold Sino-foreign cooperative education, the business of Sino-foreign cooperative education will improve dramatically by the effective, convenient, and qualified archive utilization and archive services.

2. Demands and current situation of archive utilization

2.1 Demands analysis of archive utilization for users in Sino-foreign cooperative education

The archive utilization and services for Sino-foreign cooperative education are different from normal archive service. The aim of it is to help with information verify and investigation for the current students. The core and key point are the effectiveness of archived records. The main requirements are as below:

(1) Effectiveness and accuracy of materials. Effectiveness means the archive records of students was original archive records that certified by both parts of Sino-foreign cooperative education. These records should be comprehensive without omission. Therefore, when processing a request of utilizing archive records from students in Sino-foreign cooperative education, the research for core supporting materials and other supporting information have to be accurate. The processing of archive records should be effective in order to research inaccurate information.

(2) Efficiency and productivity of service. Because of the limited time of preparation before students went abroad and students must hand in application form within due date to foreign articulated colleges or universities. Every student expected their application forms can be finalized as soon as possible. But in reality, the students will require their application form on a same period of time and will cause huge pressures for administrators.

As a result, archive utilization service is required to be able to inquiry students' information comprehensively and accurately within a short period. The efficiency requirements from students are the requirements of celerity for archive utilization service. The higher demands of archive searching services also required a professional effective service system.

Thus, setting up an effective and efficient archive utilization platform has two advantages: firstly, reducing the pressure for administrators and improving working efficiency; secondly, reducing the time cost for archive records user and improving utilization benefits.

(3) Convenience of archive utilization methods. The administrators in secondary colleges generally performed the archive utilization service for students in Sino-foreign cooperative education, as part-time tasks. Due to the large amount of work in offices the administrators, who are also providing archive services, always wish there is a way to finalize archive services simply and conveniently. The students who need the archive documents also hope the archive process can be finalized as convenient as possible. However, the current archive utilization and services process are still in a traditional way that need perform the services and create support documents for archive records manually. The working load for this process is obviously huge and the human errors are not able to prevent, thus not possible to achieve the convenience goal.

Obviously, the archive administrators wish there was an archive utilization platform that having better retrieval and friendly interface; the platform can also support acquisition, collection, organization for students' archived information. For the students who were waiting for studying abroad, they were hoping there was a simply procedure to apply and a convenient applying system

based on internet; in more specific way, the students were hoping there was an application that can be downloaded into mobile phone. The needs from students are called “the rule of desiring convenience for archive users” [6].

2.2 The current situation for archive utilization platform

The current archive utilization service systems are mainly focused on archive management information system, also with assistance from manual archive utilization service. In order to satisfy the demands of archive utilization service in Sino-foreign cooperative education and promote the progress of archive utilization service systems, the article brings up a suggested archive utilization system resolution.

According to Fang, the article brings up an idea that “setting up an archive information bio-system, promoting an intellectual archive system building” [5]. The service concept is based on “creating an inter connected internet of things to achieve the aim of establishing archive information exchanging center, by using super computer and cloud computing” and “creating an intellectual archive service platform, which aiming at dynamic administration of catalog searching and full-text information searching, displaying right after submitting, backing up data on different devices, by digitalizing students archive information”.

The idea of this archive information utilization platform is out of the box; however, this design was involved lots of factors such as universities, societies and the requirement of deeply understanding of information technology. In fact, even if the management of universities and colleges supports the setting up of this new system and start planning, it is still extremely difficult to achieve and the system is still not able to be set up in reality.

Li and Yuan [7] said that “the large amount of txt information, pictures, video and audio etc. non-structured information are saved as archived recordings; and the paper-based students archive information are transferred into digital archive information”. This statement brings up a new idea of setting up archive management platform with the background of huge data but it does not list specific procedure to implement.

Lin [8] stated an achievable solution of digitalized and networked human resource archive management network, but this system was only focused on universities and colleges human resource archive utilization and development, not suitable for universities and colleges students’ archive management and utilization situation. According to Li and Yan [9], they analyzed the utilization of overseas students’ archive. The process of it was the reference and beginning of archive utilization into digitalization, mobility, and internet based platform. Because of the discussion of traditional manual archive utilization methods, many parts are not suitable for current demand of digitization and networking.

3. Real archive utilization platform design in universities and colleges and conception of stepwise implementation

The mutual aim of both archive managers and archive users is to achieve the networking、mobility and digitization of archive utilization service, by making the full use of current information technology and setting up the archive service utilization platform. However, the bases are digitalization of archive administration, clearness of secure boundary of archive utilization and normalization of archive utilization service. In order to achieve this target, the system has to be finalized step by step. The archive utilization platform is designed as Fig. 1 below.

This designed platform is based on the reality of universities and colleges, aiming at achieving comprehensive system functions gradually. The steps on achieving this are stated as below:

Firstly, based on the current archive information management system to make the collection of archived information digitalized. Digital archives are the application of electronic documents in archive management. With the development of modern digital technology used in archive

administration, opening up new space for archive utilization and service, the contradiction between protection and utilization of original students' archives is solved and archives can last longer.

The building of digital archives provides basic conditions for setting up digital archives retrieval system and make it possible to use archives online. These updates provide better services for universities and colleges students, and the services will not be limited to time and location; archives can be searched in anytime at anywhere. The combination of digital archive and information technology can provide services that are more professional and personalize. The impression of archives will not be isolated and the features of archives utilization and services will be improved.

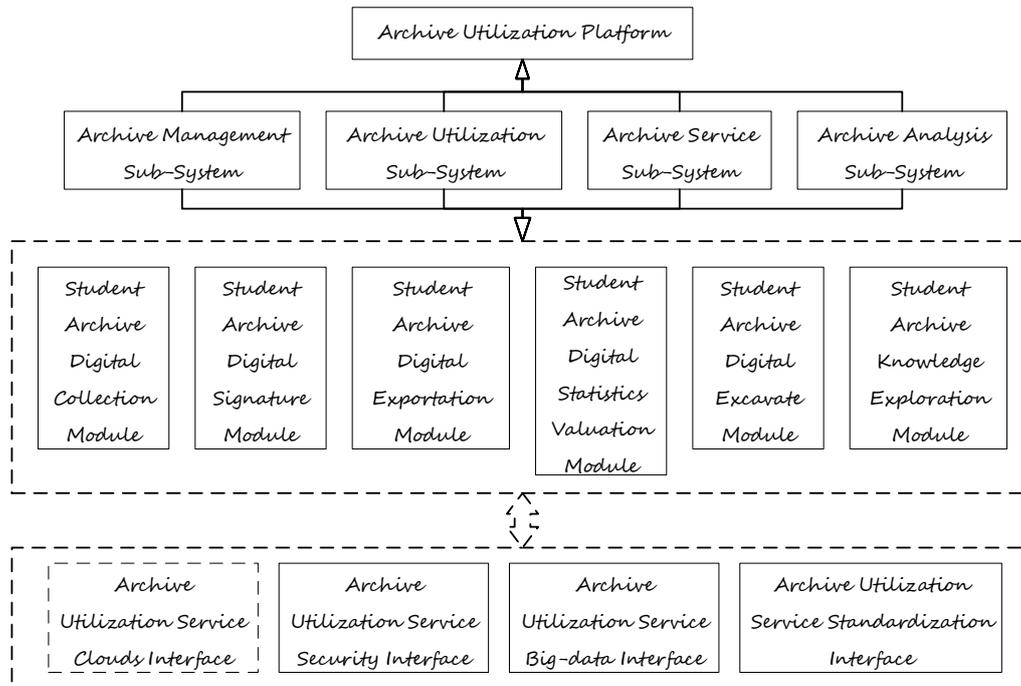


Fig. 1. Archive Utilization Platform

Secondly, creating archives utilization and services sub-system. In order to reducing mistakes and making the administrators working in a comfortable environment, this sub-system can provide personal archives searching, booking, retrieve, outputting, and validation, which makes the administrators assign the service to specific staff based on the booking and do the searching package preparation. At the meantime, students can obtain their archives by the booked time rather than wasting time on waiting and travelling, which improves efficiency and effectiveness.

The efficiency demands from archives users can be satisfied by the application of multimedia retrieve tools in digital archive utilization and services. There are three main types of archive retrieve tools on the basis of different kinds of media for digital archives: collecting retrieve tools, searching retrieve tools, guiding retrieve tools.

The most common retrieve tools that are used in universities and college for students are collecting retrieve tools, and the utilization for these tools are regulated but not finalized. The future target for archive collection should be based on efficiency of students' archives searching, and also focusing on the creation of theme contents, subject contents or other searching retrieve tools and guiding retrieve tools. Building archive searching sub-retrieve system also should be made great efforts in order to expand the source of archives.

Thirdly, creating archive records statistics and analysis sub-system. The development of statistic technic and data base analysis technic should be benefit for the students' archives. After analyzing students' archives utilization, making it possible to process digital archives automatically rather than manually. Then, on the basis of the results of statistic to make the processing more intelligent, providing decisions, supports, advices and warnings to improve the archive utilization and services.

Last, exploring the service for student archives utilization have more mobility and be more based online. Li and Yan [9] stated a new definition of overseas archive certification regulation module. And cloud service interface module was brought up by Fang. The other modules that worth to build up might be archive utilization valuation module and archive utilization safety interface module. These modules can make student archives utilization services more comprehensive and the platform will be more accurate, more efficient and simpler to process.

4. Summary

In conclusion, with the background of Sino-foreign cooperative education, the design of structures of archives utilization platform should provide better services for students who are willing to go abroad. This requires the administrators of archives utilization to insist on people oriented, based on services provided, scientific and normalized operation, inspired on innovation created, build up the multi-intelligent service platform and exert the important value of archives.

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