

The Path of Constructing a Platform of Academic Affairs System based on Continuing Education in Universities - Taking Zhejiang Open University as an Example

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Received: March 8, 2023 Accepted: April 22, 2023 Published: May 26, 2023

doi: 10.5296/jsss.v10i1.21019

URL: <https://doi.org/10.5296/jsss.v10i1.21019>

Abstract

As a consequence of the field's constant expansion year after year, the path of developing the academic affairs system platform, which is directly linked to college continuing education, has received increasing attention. Using Zhejiang Open University as a starting example, this study discusses the challenges with existing academic affairs administration in colleges and universities. It discovers that the primary concerns are the large workload of class schedule management, the lack of data support for teaching inspection & teaching quality assessment, the redundant construction of multiple systems & multiple entrances, teachers' workload accounting is unclear, student safety issues and student mental health. We handle the difficulties one at a time as we create the platform, by establishing the institutional assurance system, integrating information service entrances and so on. Simultaneously, we focus on recommendations as exploring additional features, evaluating the effectiveness in various educational contexts, and adapting the platform to different institutions. As a consequence, those actions can make contributions such as improved top-level design, data effectiveness and scientific decision-making.

Keywords: continuing education, academic affairs system platform, data effectiveness

1. Background

Continuing education is an important component of higher education in the world, accounting for a sizable share of institutions' and universities' daily training and education activities

(Zhang & Sang, 2022). With the advancement of information technology, the availability of continuing education has risen, and each university today includes departments dedicated to continuing education as well as training institutes that carry out specific instructional activities. Many schools and relevant institutions consider developing continuing education in recent years. The University of Wisconsin first introduced the concept of distance education in 1892. Its Wisconsin Idea is well known overseas and the main idea of its philosophy is that universities should be open to the public. Taking OU (Open University) as another sample, it set Teaching Center in main cities and is the world's first university to start flexible education. In China, after using Tsinghua University and Zhejiang University as the pilots of modern distance education, OUC (The Open University of China) was officially approved to build the Modern Distance Education Public Service System based on the TV University System in 2005. Considering Zhejiang Open University as a local sample in China, which focuses on open continuing education, provides a variety of educational possibilities, and coordinates the establishment of various education models. It also includes equivalent continuing education departments, such as Aopeng College and Directly Affiliated College, as well as the Teaching-focused Vocational College.

Currently, the following challenges are wreaking havoc on university information building: (a) There is a visible pattern of repeated construction, as well as a lack of top-level planning and design. The main faults are as follows: first, there is obvious duplication of construction and a lack of top-level planning and design. This is most seen in the division of business departments, inconsistent manufacturing skills, and poor building quality. There are still data silos at the school level due to the duplication of business department construction, low information response efficiency, and the problem of implementing the common construction, and it is vital to explore the value of data. The lack of clear data standards and efficient control makes data governance difficult to implement. Data silos remain a challenge due to the lack of business data models at the school level and the fact that the principal data exchange processes largely target the core system. Because no campus-level business data model exists, the data can only serve its business system and cannot manage big data, data analysis, and conversion applications holistically. (c) The user experience must be improved, and separate service entrances for teachers and students must be provided. This is primarily demonstrated by the small number of mobile services and various entrances for different user categories, the scarcity of offline service halls and self-service terminals, the persistence of offline processes for teachers and students, and the insufficient depth of coverage provided by a single network. (d) Gaps in the business system and unfinished work on the security system. It is difficult to achieve a smooth flow of data between services since the system designed for administrators does not fulfill the demands of normal teachers and students.

The aforementioned extensive data building challenges are inescapable in the creation of Academic Affairs System Platform, which are reflected in the system's operation. Non-uniform fundamental data, erroneous data input, the arduous data flow of result management, and repetitious data statistics of examination management are examples of these pain issues. The system is largely based on the NET or B/S technology architecture and comprises basic modules for handling grades, students, instructors, and subjects for three

categories of personnel: school administrators, teachers, and students.

2. Problems

Considering several main campuses of Universities, and using Vocational College, Open College, and Directly Affiliated College in Zhejiang Open University as examples(those are basically exist in other universities), while the three colleges are used as pilots to conduct pertinent field research and literature research. Directly Affiliated College in Zhejiang Open University, for example, has a four-tiered structure comprised of groups (Local colleges, University branches, and Learning centers installed at workstations). Its enrollment levels are generally high school and college, and its enrollment majors span the major fundamental disciplines, as well as participation in the government's academic support program. The following challenges and concerns in the academic administration of continuing education in colleges and universities have been identified by data analysis of acquired applicable literature and illustrative instances.

2.1 Large Workload of Class Schedule Management

Every small course-related change (such as a time or classroom change) will result in entire modifications in the manual EXCEL system. Administrators must manually rematch, which is how the traditional class schedule management paradigm in universities is typically maintained. Class transfer and suspension are two management responsibilities that rely on manual modification as well. The teaching staff manually validates the information transmission and notifies the relevant class teacher (who subsequently vocally or in a Dingding group notifies the pupils). Teachers and students cannot simply study class schedule information on a PC or mobile device, and real-time information and data flow is insufficient.

2.2 Lack of Data Support for Teaching Inspection & Teaching Quality Assessment

There is no quantitative review of instructors' performance ratings in each class, and everyday evaluation of instruction is only a formality that distributes grades (grades are outstanding, good, and competent). The final rating of teaching quality is based only on data collected from students in this major via a standard form questionnaire (elective students and other associated personnel are not included). The lack of further data mining activities (such as data cleaning, screening, and analysis) for the relevant data gathered makes providing efficient data support for the subsequent quality evaluation difficult.

2.3 Redundant Construction of Multiple Systems & Multiple Entrances

Each higher education school has developed its own system with many, similar, and simple characteristics. However, because managers were engaged in the initial design, the system lacks a single access to the PC side of student management. The daily management of front-line college staff (such as counselors and instructors) necessitates the use of many systems, which adds unnecessary strain and increases the likelihood of data inaccuracy. Furthermore, some of the existing system's modules feature redundant design components (such as the grade management module), which are present in every system and must be maintained manually by front-line staff. Manual statistics are now employed to manage the

three daily duties of make-up tests, reconstruction, and retakes. Because of the lack of a specified training program and the antiquated system administration, the list of make-up exams & retakes has a large statistical load and a low accuracy rate.

2.4 Teachers' Workload Accounting is Unclear

The workload allocation of teachers in higher education institutions is solely dependent on the final excel figures of individual administrators in the absence of supporting materials & genuine data. On the one hand, it may lead to inconsistencies in workload recording, and instructors lack access to review it, making it impossible for them to evaluate whether the recorded workload varies from the actual one at the time. On the other hand, in the absence of monitoring, the administrator might select the workload percentage based on subjective assumptions, so impacting the instructors' performance review at the end of the year.

2.5 Student Safety Issues

It is difficult to count and record students' excursions quickly and precisely since colleges (especially during the semester) do not have adequate control over the situation of students arriving and departing the school in real time. Due to a variety of challenges, the processing time for children entering and exiting the school is lengthy (such as delayed data and faults in syncing data between systems once students take leave). For example, some students rely on paper leave papers to leave school earlier, which is dangerous for them. This is due to the school's lack of effective and real-time supervision mechanisms.

2.6 Student Mental Health

Early professional assistance can prevent substantial implications of common psychological concerns (such as interpersonal issues, environmental adaption challenges, academic difficulties, and career difficulties) in kids (Li & Chen, 2022). Despite the inclusion of qualitative and quantitative evaluations, the complete assessment models presently used at universities to track mental health are unstable and contain significant assessment errors. It is difficult to detect students who are having mental health aberrations and give them with appropriate therapy due to a lack of efficient and continual information-based data support for relevant management.

3. Summary

In response to the aforementioned six difficulties, we will use the integrated planning and step-by-step execution concept to improve the top-level design of the Academic Affairs System Platform. Throughout the preliminary research phase, we completely understand the real needs of the relevant departments in order to maximize the system design. To break down organizational barriers within and between departments (and to achieve effective services and collaborative governance across departments, levels, and businesses based on data sharing), the original school service process should be optimized and rebuilt with the "teacher and student-oriented" principle in mind. The technical departments adhere to the ideas of synchronous planning & construction, synchronous operation of network security system construction, also together with campus network security system development. It develops a

comprehensive network security defense system to ensure that the informationization of school operations functions smoothly. The business department drives digital reform of colleges and universities, and gradually develops a new ecological system of the intelligent campus based on the premise that all key& central tasks are quantifiable and assessable.

3.1 Establishment of the Institutional Assurance System

The whole university coordinates the creation of a flawless data management system, technological standards, and building planning scheme to ensure the secure functioning of relevant data systems and the regular synchronous circulation of class schedule data and instructors' workload data. The implementation and collaboration connection is followed by all departments and colleges. Improve uniformity and closed-loop management of the entire assessment process by using the assessment mechanism for teaching inspection and teaching quality evaluation. Furthermore, universities should develop talent strategies, educate staff members at all levels in information technology knowledge& abilities, and raise staff members' understanding of the Internet & information technology for teaching-related duties. Creating mechanisms (for training, introducing, flowing, and employing talents), design talent plans and measures to meet college development needs, and it increases the overall appeal and cohesiveness of informatization talents.

3.2 Integration of Information Service Entrances

The "Unified Identity Authentication Platform" is designed to provide a unified user management interface of the application system via the specified centralized authentication technology specification in order to achieve the goal of unifying user information management and authority control in order to solve the problem of redundant construction of multiple systems & entrances. The platform integrates the management of information systems and builds service access windows for different user types through the development of the "Academic Affairs System Platform". It offers different authorizations and services for students, teachers, and other visitors based on their different identities. By managing the life cycle of students' and instructors' school-related procedures, the university will establish a one-stop shop for the complete business process. Students will be provided with business domain services (such as admission, orientation, schooling and departure). For faculty members, it will provide a variety of teaching services management.

3.3 Comprehensive Design of Technical Architecture

To address the underlying issue of duplication development of many systems and entrances, the platform's technical architecture must be modernized (Ma & Song, 2012). The platform's technical design is founded on seven guiding principles: advanced and practical, standardization, openness and compatibility, scalability, security and reliability, manageability, and automation. Based on the aforementioned concepts, we will develop a high-quality and data-sharing system for educators & students, a revolutionary product operation & maintenance intelligence system, an integrated company management wisdom system, a multidimensional school decision wisdom system, and an all-encompassing wisdom system for school affairs. The Platform Functional Architecture Diagram below clearly shows that

the foundation drives the key modules of the Basic Platform: System Management and Work-flow Engine(of the Data Center, Academic Affairs Department, and Human Resource System). The initial Entity method is used in the application layer's initial tier. The second application layer follows the First Entrance - Students Affairs - Leave Campus chronological order, encompassing the affairs of Digital Welcome, Leave for Absence, Grades Inquiry, Digital Leave, and so forth. The Online Office Lobby's third tier is broadly separated into three sections (Lobby Home, Students Service, and Staff Service). Both students and teachers may immediately access common apps from the home page, and the platform will automatically detect various identities and push the application settings connected to them following the login interface.

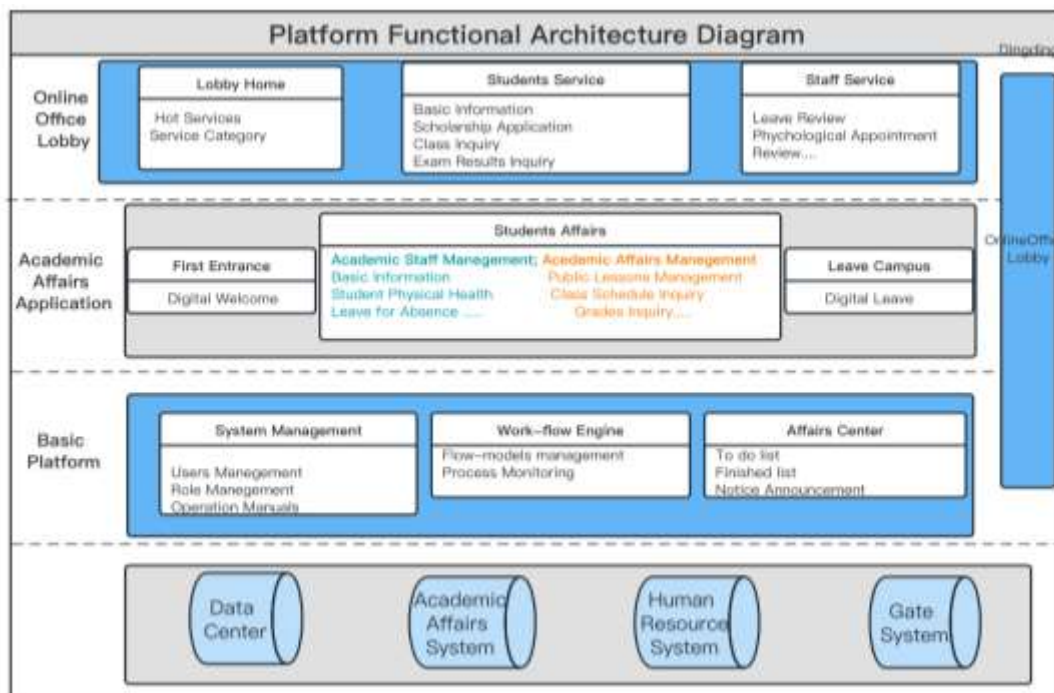


Figure 1. Platform Functional Architecture Diagram

3.4 Intelligent Decision-making Data Sharing

The platform was designed with the goal of assisting student group analysis and big data functions for scientific decision-making and other types of intelligent decision-making. We will improve the Student Affairs Information Management Module, standardize and centralize student affairs management, create a closed-loop system for student management, and finally advance the informationization of student affairs and academic affairs management by building this platform. Before being batch-imported into the Big Data Analysis Module, the valid data will be cleaned, filtered, and categorized. In addition, valuable data reports and trend analyses will be created to successfully aid the school's future development decisions. The program gives UPI and BDI examinations to students on a regular basis, computes test results automatically, and produces a list of pupils who may have psychological disorders. It also provides analytic, retesting, and examination of exam outcomes. The information on the list of students with suspected psychological issues is

synced with the database of students with psychological problems in real time to ensure the quality & validity of the data in the database.

Data sharing entails the thorough tracking of student information as well as the synchronization of data among educational departments. The module is designed to accurately serve students with mental issues while also averting significant psychological crises and group school crises by providing adaptable psychological exams, mental appointments, and monthly relevant reports to track student psychological dynamics. It enables teachers, counselors, psychologists, and others to report, assess, and manage students of vital concern (as well as to quickly and easily collect the most basic data from an existing database of students).

4. Recommendations

4.1 Exploring Additional Features for the Platform

In reaction to the weaknesses, the platform's fundamental logic and additional features are updated. (such as the excessive workload of everyday tasks and the absence of data support). The previous system just included a simple login page and modules for handling grades, teachers, and students. However, the new platform allows for module expansion and extensive data analysis. The majority of the platform components are made up of the nine sections listed below and support the additional features for the platform as well:

(a) **Academic Affairs Hall:** Home page of the hall; Student service; Teacher service. Supporting main entrances for users login.

(b) **Digital Orientation:** New student service; Orientation management; Query statistics. Supporting orientation activities for the college.

(c) **Counselor Management:** Class management; Student information; Disciplinary action; Disciplinary declaration and audit.

Supporting the basic issues in counselor's daily management and paying more attention to the data statistics.

(d) **Mental Health Management:** Mental health file management; Early warning reminder.

Supporting mental health care and provide the college with a list of suspicious persons for early intervention.

(e) **Leave Management:** Leave process; Leave statistics; Intelligent docking gate system.

Supporting digital leave process & management.

(f) **Scholarship Module:** Scholarship application; Scholarship review & announcement.

Supporting scholarship application, issuing and supervision.

(g) **Dormitory Management:** Dormitory resource management; Transfer management; Vacation stay management; Check-out management; Report statistics.

Supporting dormitory application, scheduling, and relevant statistics.

(h)**Exit Management:** Exit list management; Exit process management; Exit procedures.

Supporting the full process of the exit management and take hand of the relevant statistics.

(i) **Big Data Analysis:** Data sharing; Key student database; Student group analysis; Intelligent decision making.

Supporting data sharing, big data analysis, and intelligent decision making

Administrators and other users can rearrange the order in which related modules are shown based on their usage patterns, and they can log into each module with a single click from the Academic Affairs Hall home page. Users can get access to the platform with the highest usage rate (due to the platform's capacity to automatically recognize users' responsibilities and develop relevant modules), which is fundamentally divided into top administrators and administrators at all levels(including instructors, students, and other visitors).

4.2 Evaluating the Platform's Effectiveness in Various Educational Contexts

(a) **Flexibility:** The successful platform should be adaptive and flexible enough to meet the demands of diverse educational environments based on the significant sample as Zhejiang Open university, such as K-12, Higher education, Vocational education, Non-academic education, and Corporate training.

(b) **User Interface:** The platform should have an easy-to-use interface that is visually appealing, user-friendly, and engaging for students or users of all ages. For example, it can provide the simple version for aging users in Geriatric education.

(c) **Accessibility:** The platform should be accessible to all students and users, regardless of abilities or not, Academic or Non-academic. The platform should be effective to have built-in features that make content available and understandable for all learners, especially those in Vocational education.

(d) **Integration:** The platform should integrate well with other software used in the educational context, like Unified Identity Authentication Platform, Student Information Systems (SIS), Dingding Tools and other technology infrastructure.

4.3 Adapting the Platform to Different Types of Institutions

Understanding the specific objectives, aims, and expectations of such institutions is required when adapting the platform to different types of institutions. (a)First, it should review the institution's present infrastructure, procedures, and IT resources to ensure that the platform can integrate smoothly with existing systems. (b)Identifying important characteristics: it includes determining the main features that the institution requires based on the needs analysis. Integrating with other applications, data analytic, user authentication, content management systems, and social media integration are all possibilities. (c)Customizing the interface and branding: The platform should be tailored to meet the institution's identity and design style, so that users consider it as an extension of the organization. This can include a wide range of duties, from logo placement to color scheme.(d)Testing and refining: Testing the platform's functionality & interface, collecting user input, and refining accordingly. This ongoing process

ensures that the platform meets the goals of the specific institution while also providing a great user experience.(e)Providing assistance and training: Creating training and supporting materials for the platform so that users at the institution may fully utilize its potential. Users in institutions will be more inclined to use the platform's capabilities if they are familiar with it.

5. Contributions

The study's original contributions to the field of academic affairs management, as well as the possible benefits of applying the suggested platform, such as improved top-level design, data effectiveness, and scientific decision-making.

5.1 Improved Top-level Design

The construction of the Academic Affairs System Platform can make contribution to improving top-level design for universities and other institutions. Universities can use the growth of information technology, particularly intelligent technology, to enhance top-level design as well as assist the development of high-quality education systems. From the IT technological angle, it can stimulate the cultivation of high-end talent, correct administration, system innovation, personalized service and decision-making support. For example, it helps administrator to set critical nodes to improve the supervision over all administrating process. System innovation also requires feedback from existed users and make system adjustments according to those received suggestions.

5.2 Data Effectiveness

In terms of data effectiveness, it incorporates digital closed-loop service management and multi-terminal coverage. The platform understands the importance of data flowing more often (through integrated services), students running less frequently, lowering the entire office cycle, improving productivity, and making the office process more apparent. The platform speeds up the growth of students' everyday activities by streamlining the processing of cross-system transactions and allowing data-running operations such as multi-terminal inquiry. Connecting to the School Gate Management System (for instance, students who pass the gate can generate a one-time "exit code" on their phones). To prevent students from using other people's mobile phones, the exit code is shown as "five codes in one," and a photo of the student's face must be displayed in the same interface. Gate administrators may verify their face photographs in the five codes in one interface and brush the code directly at the gate to allow students exit the school to prevent students from logging in using other people's mobile devices. When a student's vacation term expires, the details of those who have not returned to class can be sent to students and teachers through SMS (or Ding Message) as a reminder. Furthermore, to show the data effectiveness, the "entry code" will be disabled and discolored, as will the gate entrance port.

5.3 Scientific Decision-making

The platform's ease and scientific of decision making (in terms of student safety, mental health monitoring and other aspects) is a better measure of the system's effectiveness(Li, 2013). The platform requires the participation of the university in order to set standard and

exclusive policies for student difficulties. The platform may be used to manage different sorts of students at different levels, intelligently analyse recent student behaviors, and improve student safety management based on leave and location data. Furthermore, school authorities can instantly detect the behavioral patterns of students who are now absent from campus, allowing institutions to appreciate student dynamics and prevent student safety crises.

4. Conclusion

Universities and institutions such as Zhejiang Open University is actively developing the platform for academic affairs administration. We are aware that all management (including teaching & student affairs) is based on the manual management of each post administrator, which is insecure and difficult to control thoroughly. To meet the aims of comprehensive application coverage, data visualization, and intelligent management services, the platform achieves optimal integration with information systems, increases data effectiveness, and realizes "one source of data," among other things. Because of the flexibility and simplicity of the online service, the degree of scientific education (such as decision-making, correct administration, and personalized service) is considerably raised. The findings and offered remedies may be relevant to many institutions experiencing comparable academic management difficulties, and they might be investigated as a starting point.

Acknowledgments

This study is financially supported by the research outcome of the 312 Talent Training Project of Zhejiang Open University.

References

- Li, G., & Chen, J. (2022). Research on data-driven mental health assessment of college students. *Microcomputer Applications*, 38(11), 163-166.
- Li, L. (2013). The role of counselors in student safety work in independent colleges. *Journal of Sichuan Vocational Technology College*, 23(03), 99-101.
- Ma, L., Song, J., Song, M. (2012). Open platform: a review of the operation model and technical architecture research. *Telecommunications Science*, 28(06), 125-140.
- Zhang, H., Sang, P. (2022). Exploration of the design strategy of intelligent management and service platform for continuing education in colleges and universities. *Journal of Chongqing Institute of Science and Technology (Social Science Edition)*, 4, 34-40. <https://doi.org/10.19406/j.cnki.cqkjxyxbskb.2022.04.007>

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