An Analytical Review and Strategic Recommendations for National Database of Basic Educational Status of Higher Education Institutions (HEIs): Based on Undergraduate Education Assessment and Evaluation

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Abstract: *A new round of Undergraduate Education Evaluation and Assessment (UEEA) has launched from 2021-2025. The UEEA's data are collected directly from the National Database of Basic Educational Status of HEIs (National Data Platform), so the accuracy of the data on the Data Platform is directly related to whether the UEEA can reflect the actual situation of the colleges/universities. This paper will briefly introduce the background and index of the Data Platform and suggest how to carry out data collection and UEEA work efficiently.*

Keywords: *Educational Evaluation and Assessment; Quality of Education; Educational Measurements*

1. Introduction

In 2021, China's Ministry of Education issued the Implementation Plan for Undergraduate Education Evaluation and Assessment in Ordinary Colleges and Universities (2021-2025), which began a five-year evaluation and assessment of China's colleges and universities. The UEEA divides the colleges/universities into two categories and four types. The first category examines the quality assurance capabilities to build a world-class university and undergraduate education's comprehensive reform measures and results. The second category examines the talent cultivation, college/university-running resources, and student development effectiveness of the college/university, mainly including three types of colleges/universities: (1) focusing on cultivating academic students, (2) focusing on cultivating applied students, and (3) colleges/universities that participate in the UEEA for the first time and have a short history of running college/university. The assessment content primarily comprises a combination of "1+3+3" reports and expert inspections conducted within colleges and universities. Specifically, the college/university provides a "Self-evaluation Report". This report is a summary and portrait of the college/university education work, including an introduction to the college/university, the progress of the self-evaluation work, and the main body of the self-evaluation report. The main body of the self-evaluation report is written by the requirements of the "Undergraduate Education Evaluation and Assessment Index System"(UEEAIS), which mainly shows the college/university quality assurance culture and ideology and the comprehensive education reform. The Education Quality Evaluation Agency of the Ministry of Education provides three reports: the data analysis report on education status, the survey report on teachers' teaching experience, and the survey report on students' learning experience. Centre for Student Services and Development of the Ministry of Education provides reports about graduates: employment data analysis reports, graduate tracking survey reports, and employer tracking survey reports.

One of the outstanding features of this round of evaluation is to reduce burdens and increase efficiency. The UEEA's data comes directly from the National Data Platform and does not require additional data collection. Therefore, collecting data and filling in the National Data Platform as UEEAIS requires can genuinely reflect the situation of college/university education and teaching-related indicators. This article briefly outlines the establishment process of the data platform and the issues that can be improved in the future. Based on the author's work experience, this article aims to analyze the problems and solutions encountered during the reporting process to serve as a reference for subsequent data reporting.

2. The History and Persistent Challenges of National Data Platform

In 2007, the Department of Higher Education and the Education Quality Evaluation Agency (EQEA) formed the Basic Education Status Database 1.0 based on the first round of undergraduate education evaluation and assessment and began trial operation in 2009. In 2011, the Ministry of Education pointed out that regular assessment through the Basic Education Status Database is one of the primary methods for the new round of college evaluation. 2013, the EQEA upgraded the database and formed the Basic Education Status Database 2.0. The platform updated the verification logic between form's data and improved its quality. In 2016, the database was upgraded to the National Database of Basic Educational Status of HEIs, which collects data from all undergraduate colleges/universities around China and applies platform at the national, provincial and college/university levels. The latest database collected college/university basic information about college/university conditions, faculty and staff information, discipline and majors, student information, educational management, quality control, etc.

Although the National Data Platform has continuously improved over the past ten years, some areas still need improvement. To investigate the main problems existing on the data platform, after interviewing the college/university's teaching management, HR, student management, information management and other data filling office heads and specific uploading personnel, six problems were formed, including (1) Insufficient commonality (2) Insufficient distinctiveness (3) Weak real-time performance (4) Outstanding limited authority (5) Insufficient emphasis on new concepts (6) Not apparent in the contemporary era[1]. This article also found the following three points that can be improved.

Firstly, the National Data Platform has substantial homogeneity and weak heterogeneity. Thus, it cannot reflect the characteristics of the college/university. The indicators that reflect the attributes of majors in the National Data Platform include normal, medical, and engineering colleges. Still, there are no index statistics of specific colleges/universities with unique characteristics, such as finance and economics, agriculture and forestry, arts and sports, etc., that will lead to (1) because of the large number of teachers and students in comprehensive colleges/universities, the number of teacher and student awards, the number of projects, the number of high-quality courses and other indicators are consequently higher. The average of indicator values can better reflect the overall situation of such colleges/universities. (2) the number and growth of paper book collections is one of the indexes of learning resources. Still, digital book resources and databases are increasingly used in digital education. Colleges and universities have invested a lot of funds in constructing digital book resources, which are not calculated or displayed in the National Data Platform. (3) The exam success rate of normal colleges/universities is often lower than that of comprehensive colleges/universities, and the low rate is due to statistics that are not actual reality. According to the current policy, "publicly-funded normal students generally return to teach in primary and secondary school in the province where they are born after graduation, and promise to engage in primary and secondary education for more than six years… Publicly-funded normal students who have completed one semester of teaching by the agreement can be exempted from the examination to study for a part-time master's degree "[2]. Publicly-funded students can only work after graduation because of policy. If they choose to apply for full-time postgraduate, they are considered to be in breach of policy and need to bear the liability for it. According to public data, the number of 2022 undergraduate graduates of Southwest University who went on to postgraduate in China accounted for 23.27% of the total number of undergraduate graduates; such proportion is 30.18% based on the non-publicly-funded average non-directional undergraduate graduates[3]. Therefore, in the UEEA index, if the evaluated subject is a normal college/university, all undergraduates and the exam success rate of the public-funded average students should be counted separately.

Table 1: The various Definitions of a full-time teacher.

Standard	Definition of a full-time teacher
A national standard on the teaching quality of higher education institutions [4]	Generally speaking, full-time teachers refer to teachers responsible for teaching primary and professional knowledge for their discipline, excluding teachers accountable for teaching general education courses or public courses.
Undergraduate Education Evaluation and Assessment [5]	Full-time teachers: status = in-service, teaching type≠ no teaching, teacher institution≠ party and government organs, identity ≠ college/university leader, ≠ counsellor, ≠Laboratory technician
Teacher Education Professional Programmatic Accreditation[6]	Full-time; Current employees; teaching qualification certificate; specialize in teaching
Higher Education Statistics Report	Full-time; teaching qualification certificate; teaching-oriented positions; teaching-research-oriented positions

Second, as shown in Table 1, similar data have various standards in different evaluation systems, and

personnel may confuse the standards when collecting data, resulting in incorrect data collection and data that cannot reflect the actual situation of the college/university. For example, other education statistics define the full-time teacher index in addition to the UEEA. The same metric item has different definitions, which leads to information gathering and reporting personnel potentially confusing metric definitions, causing problems when aggregating statistics.

Additionally, as shown in Table 2, some data from the National Data Platform are directly derived from the statistical reports of the Higher Education Statistics Report, eliminating the need for additional entries. Repeated statistics in the database would increase the workload of information reporters without any practical significance.

Table 2: The references between National Data Platform and Higher Education Statistics Report.

Index	National Data Platform Forms	Corresponds to Gaoji Forms
gross floor area	Form 2-1	G5374,G5377
The area of teaching and administrative space	Form 2-2	G5374
Library area	Form 2-3-1	G521
New additions to books	Form 2-3-2	G521
fixed asset	Form 2-5	G5377
Basic information on the number of students	Form 6-1	Higher Education Statistics Report

Thirdly, the statistical analysis methods require optimization. The various indicators for UEEA data are interlinked, and when conducting statistics, it is necessary to consider the variables and interrelationships of each Form. If the statistics do not consider all variables during calculation, some data will be under-counted, failing to reflect the actual state of the colleges/universities. For instance, in calculating the student-faculty ratio by major, the calculation referenced relevant content from Form 1-5-1 on basic information of faculty and staff, full-time teachers form, Form 1-4-1 on significant settings, and Form 1-6 on undergraduate student conditions in four Excel spreadsheets (as shown in Table 3), but this method of calculation still has its shortcomings.

Table 3: The require data in calculating the student-faculty ratio by major.

Form	Fields Required for Statistics	Values
Form 1-5-1 Basic Information of Faculty and Staff	Staff ID; Age	\
Full-time teachers	Staff ID; Professional Technical Title; Teaching Major Code	Senior Professional Title = Professor or Researcher Associate Senior Professional Title= Associate Professor or Associate Researcher
Form 1-4-1 Major Settings	Internal School Major Code; Major Name; Major Code	\
Form 1-6 Undergraduate Student information	Internal School Major (Broad Category) Name; Internal School Major (Broad Category) Code; Student Category	Student Category = On-Campus Students

The categorization of undergraduate students' majors in Form 1-6 is delineated through internal school codes, which are subsequently employed to extract the corresponding professional codes from Form 1-4-1 to ascertain the student count for each major. However, a discrepancy emerges during this procedure: students enrolled in broad categories who have not yet been assigned to a specific major may possess internal school codes in Form 1-6 that do not correspond to the professional codes of the internal school as listed in Form 1-4-1. Consequently, this leads to an underestimation of the student population in broad categories, resulting in an artificially deflated student-faculty ratio, failing to accurately reflect the actual state of the student-faculty ratio per major. A productive method to address this issue is to integrate the "Broad Category Codes" and the "Internal School Professional Codes Included" from Form 1-4-2 with the data from Form1-6. This integration will facilitate the calculation of the internal school codes for students within broad categories, thereby ensuring that students who have yet to be assigned to specific majors are accurately included in the computation of the student-faculty ratio by major.

3. How enhancing Undergraduate Education and Institutional Management through UEEA: Strategies for Data Collection and Self-Assessment

The current round of evaluation is designed to foster reform, management, and strength through evaluation. It necessitates using UEEA to propel undergraduate education reform and the continuous improvement of school management. The national data platform can analyze teaching status data, facilitating higher education institutions' grasp of their teaching quality and enhancement of teaching management. This section gives suggestions for resolving issues encountered in data collection and self-assessment in the evaluation and assessment process.

In data acquisition and submission, it is imperative to initially effect a paradigm shift in thought, eschewing the metaphorical avoidance akin to "fearing the physician due to the ailment." Assessment methodologies on the global stage encompass accreditation, evaluative assessment, and other modalities[7]. Evaluative assessment, as one among a spectrum of approaches, is targeted at facilitating the educational and administrative facets of institutions, with the ultimate goal of elevating the calibre of talent cultivation and the composite competencies of the school. Should every educational institution be capable of attaining its projected objectives without assessments, then the essence of any evaluative process would be rendered futile. If an institution remains static post-assessment, such an evaluation would not merely be devoid of value but would also exert a harmful influence by squandering resources. Consequently, it is essential to transform the cognitive frameworks of data collectors and reporters, meticulously comprehend the delineations of various metrics, and submit data with integrity, refraining from the temptation to embellish or diminish figures for superficial appeal.

Secondly, it is necessary to clarify the subject of data filling and strengthen the coordination and cooperation among various departments. Some of the forms in the national data platform may involve multiple offices and may be inconsistent with the school's current division. Therefore, before entering data into the platform, it is necessary to clarify the subject and divide the data that must be counted in one form into different offices according to the school's functional division. On the other hand, some data require the cooperation of various offices for statistics. Specifically, the smart classroom area requires the coordination and calculation of multiple offices, which involves the combined calculation of the room number of the smart classroom and the area corresponding to the room number. Also, It is evident from the filling procedure that due to the database's inherent verification capability, preliminary data must be entered initially before subsequent entries can be made. For instance, foundational information such as personnel details, student records, and educational data should be input first. Only after this initial input can related subsequent data, such as teachers' academic achievements and students' learning outcomes, be recorded.

Construct a school-level data platform leveraging the national data platform to enhance data sharing and administrative efficiency. The National Data Platform enters data from September to November annually. The benchmarks for data aggregation are time points, natural years and school years. Consequently, the National Data Platform's data is considered static. Using the school-level data platform is highly time-effective and flexible. It can be updated monthly or weekly to monitor school education and teaching status data dynamically. In terms of data collection, constructing a school-level data platform can combine the needs of various functional offices, add statistical fields, and unify field standards to grasp school data and show the complete picture of school education more comprehensively. Regarding data use, the school-level data platform server can be deployed on campus, ensuring enhanced data security. Multiple accounts can be allocated to academic office secretaries and relevant staff, improving school management efficiency and preventing data discrepancies.

Finally, perfecting the school's quality assurance system and establishing a comprehensive data governance framework is essential. The data is an intuitive reflection of the school's primary running conditions and resource distribution and a display of outcomes the pertinent responsible departments achieved. Suppose there are irregularities in the data entering, such as estimating data or using outdated based on the beauty of the data or convenience of entering. In that case, it will lead to data distortion. The extant data-entering system lacks effective punitive mechanisms for discrepancies in data input, which inadvertently fosters data distortion. To alleviate the situation, as mentioned earlier, enhancements to the school quality assurance system are warranted, and the subjects responsible for data entering should be explicitly delineated so that "whoever reports the data will be responsible." Furthermore, data accuracy should correlate with the personnel's performance assessments or workload metrics for data collection and documentation. This linkage serves as an incentive for the reporting staff to ensure the precision of the data provided, thereby enhancing the accuracy of the data.

4. Conclusion

Evaluation and assessment are essential tasks, and UEEA's data is cited from the National Data Platform. In the self-assessment report writing stage, this paper finds that the platform needs to be improved, such as high data homogeneity, insufficient heterogeneity, different indicator standards, cumbersome data collection, and statistical indicators need to be strengthened. The national platform has the above problems; however, at present, it is still a working platform that needs to be relied on for quality monitoring, and its index connotation can fairly reflect the basic college/university-running conditions of the college/university and the situation of teachers and students in college/university, so it is still necessary to pay attention to the data filling of the national platform.

In data filling, we must change our thinking and realize that data filling is not for "inviting credit" but to use data as a ruler to measure the quality of our education and teaching. Based on this understanding, to do an excellent job in data filling, colleges and universities should clarify the division of office and the subject of data collection, establish a college/university-level teaching status database to achieve resource sharing, improve the efficiency of college/university management, and do an excellent job in system guarantee. Only in this way can we do a good job in data collection and filling, make good use of the data of the national platform, prepare the college/university self-evaluation report with audit and evaluation requirements, and understand the college/university's situation through audit and evaluation.

Acknowledgement

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