Research on Process Assessment of Higher Vocational Colleges under the Big Data Platform

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Abstract: Examination, as a part of the teaching process, plays a very important role. It can not only check the students' learning situation, evaluate the teaching effect, and feedback the teaching information, but also have the function of guiding students' learning and stimulate learning. In the process of teaching, how to carry out reasonable assessment, how to carry out assessment, how to improve the teaching effect through assessment has always been an important work for many educators to explore and practice. With the rise of big data technology and the rapid development of higher vocational education, process assessment has increasingly shown its advantages. And it is particularly urgent to collect, count and analyze all the data of process evaluation through the big data platform. Under the background of big data, this paper researches modern high-tech tools and assessment, reengineers the assessment of higher vocational colleges, abandons the shortcomings of traditional assessment methods, and achieve data process statistics to meet the individual needs of teachers.

Keywords: Process assessment; Process reengineering; Need; Big data

1. Introduction

Since the 18th National Congress of the Communist Party of China, Comrade Country has made a series of important expositions on quality issues and put forward to vigorously promote the construction of a powerful country with high quality. In order to realize the powerful country with high quality, it is extremely urgent to improve the teaching quality of higher vocational education. Course assessment is an important criterion to measure the quality of teaching, and the improvement of assessment quality is also a manifestation of the improvement of teaching quality.

After investigating and consulting relevant materials, there are two main situations in the current assessment of higher vocational colleges in China.

2. Research Status

2.1. Traditional assessment

At present, the traditional paper assessment is still the assessment method in many higher vocational colleges. In this assessment process, it can be roughly divided into the following steps: making out a examination paper, students' answering the paper, marking the paper, examination paper analysis and grade evaluation. The traditional teaching assessment is a way to conduct qualitative assessment of students' learning after the end of the course, taking into account the students' usual performance, and according to a certain proportion to give the final evaluation of students.

2.2. Process assessment

According to the characteristics of higher vocational education, which focuses on vocational skills training and applied technical operation, and focuses on cultivating students' independent operation and the ability to combine technical theory with practical operation, many higher vocational colleges have implemented the process assessment method. Taking the "Regulations on the Management of Courses in Shanghai Electronic Information Vocational and Technical College" of Shanghai Electronic Information Vocational and Technical College as an example, in the Article III - course assessment method and scoring method, it is stipulated that students' attendance, homework, written examination (closed-book, open-book), oral examination, computer operation and other modules should be assessed according to the needs of the course. And in the way of module combination, the final result is converted by the corresponding proportion of each module set by the teacher.

3. Disadvantages of Current Assessment Methods

3.1. Traditional assessment

One, it encourages the style of examination-oriented learning, leading most students to pay more attention to the final examination than the usual learning process.

Two, it encourages students' sudden learning before the examination. At that period, students ask teachers to cir-

cle key points, recite concepts and do exercises, which is difficult to reflect whether the students' mastery of knowledge meets the teaching requirements or not.
Three, the one-off examination at the end of the term is often difficult to give consideration to comprehensiveness and reasonably assess students' mastery of knowledge comprehensiveness.
Four, moreover, the information feedback of the one-off final examination assessment system is lagging, and it is difficult to evaluate the students' mastery of the required knowledge in the middle of the course, so that the teaching methods, teaching progress and teaching arrangements cannot be adjusted in time. After the final examination papers are analyzed, the course teaching cannot be adjusted in any way.

3.2. Lack of process assessment of large data fusion platform

The process assessment focuses on the students' comprehensive learning and their usual attention to the course. Teachers can adjust their teaching methods, schedules and arrangements through information feedback in attendance, homework and computer operation, and students can find their own shortcomings in time for remediation and adjustment, so as to achieve the optimal state of both parties and submit students' actual mastery degree of the course.
However, the need for process assessment does not match the current mature educational management system on the market, which hinders the further optimization and development of process assessment.
One, teachers can't implement individualized modules to realize process assessment scores: Take the educational management system of Shanghai Electronic Information Vocational and Technical College as an example, in the established assessment module, the source of the results is roughly divided into the following modules: final scores, the usual scores, the general evaluation, the delayed examination and the supplementary examination. Through the investigation of some teachers who have implemented the process assessment in the college, it is found that these teachers basically use the offline results of each module to record the final scores before they are applied to the platform modules.
Two, students can receive the process results of the course immediately in the whole course. In the established assessment module, only teachers publish and distribute the results at the end of the term, can students inquire about the results; if teachers do not actively announce the process status of students in the course, students are unable to reverse this situation when they learn that they have been disqualified for a variety of reasons, or their general grades or final grades are too bad.

4. Achieving Process Assessment through Big Data Fusion

With the popularization of digitalization, intelligence and informatization, advanced technologies such as artificial intelligence and cloud technology are applied to teaching and assessment. We hope to establish a large data platform to integrate and extract data to meet the needs of process assessment.

4.1. The problem to be solved

One, to meet the diversification and individualization requirements of the process assessment: teachers' course design process styles are different, and it is difficult to specify course assessment module to reflect the diversification and individualization of assessment.
Two, to reflect the process of assessment: the grade evaluation can be divided into individual modules such as attendance, homework, oral examination, computer operation and so on, and throughout the course.
Three, to reflect the fairness and transparency of grade evaluation: teachers publish the course assessment module at the beginning of the semester; push assignment task to students according to module requirements, set the time and format of network submission; large data publish students' attendance records and multi-module teachers' approval records in real time.
Four, to satisfy students' appealable needs for grades: students have questions about teachers' marking records and achievements, and they can appeal online for reassessment of grades.
Five, to satisfy the need of preserving the whole assessment archives for the process assessment because of its procedural and traceable features: in order to avoid the hidden dangers brought by students' complaints about their grades queries, from the submission of assessment schemes by teachers to the submission of assignments by students and the completion of grade assessment by teachers, all the electronic assessment archives are completely preserved, that is to say, it ensures the integrity of the assessment materials and avoids the trouble of preserving a large number of paper documents.

4.2. The research process

Process reengineering of assessment management process: in order to meet the needs of process assessment and establish a large data platform to achieve data fusion and extraction, it is necessary to reengineer an assessment process that is completely matched with it.
Figure 1 is the original assessment process: the process in the box is completed at the end of a semester, and the process is black case work. Figure 2 is the process after reengineering: the process in the box runs through the whole teaching stage of the course; the process in the box is completely transparent, and students can check and

appeal at any stage of the whole process; the whole process introduces high-tech attendance, marking and other subsystems to reflect fairness and improve accuracy.

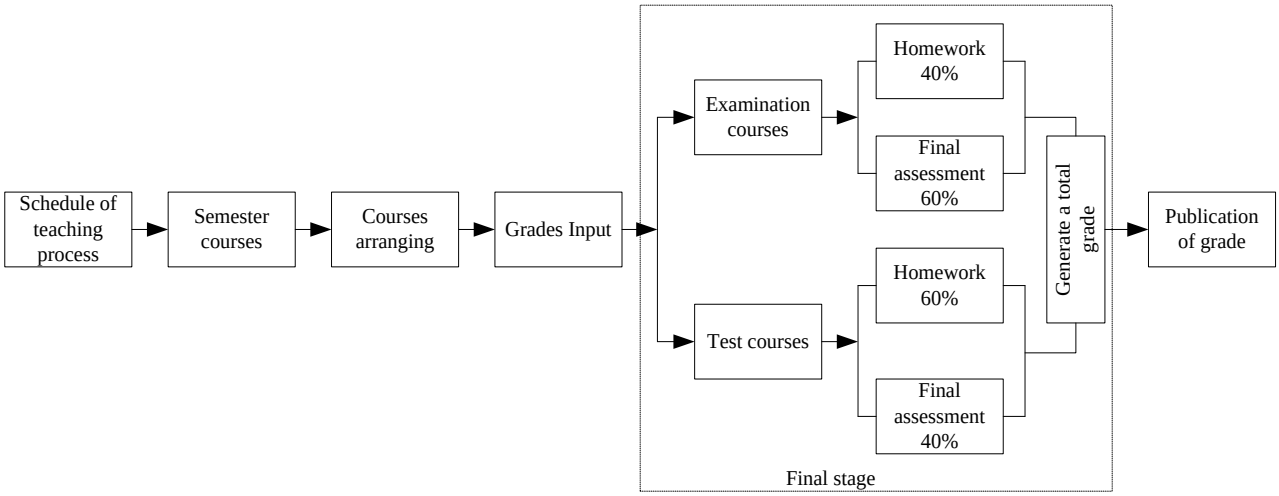

Figure 1. The original assessment process

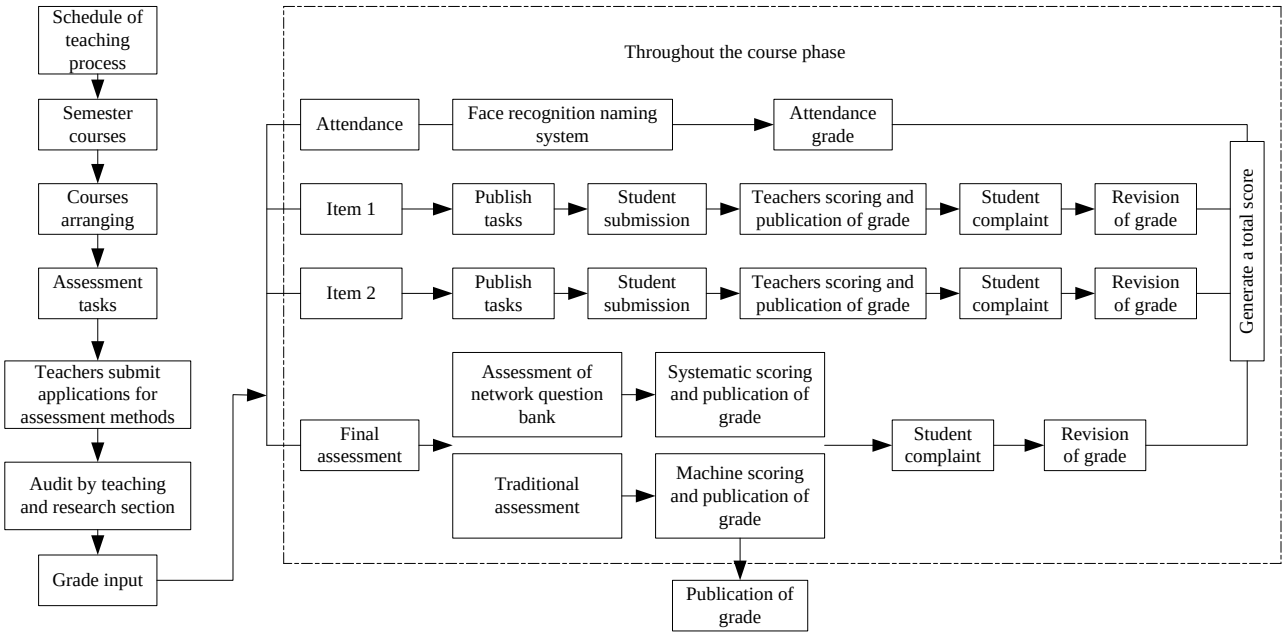

Figure 2. The reengineered assessment process

4.3. Designing a visual web interface diagram based on the reengineering process

Application for process assessment scheme: Taking a course as an example, the teacher submits an individualized application for process assessment, then the director of the teaching and research section audits it according to the talent training scheme and the course standard. If it meets the requirements, it will pass, if it does not, it will fail, as shown in table 1.

Introducing a high-tech face recognition system and linking it to the big data platform, as shown in figure 3.

Multiple modules constitute the student interface diagram of the process assessment, so as to be visible and appealable: because each module has set a strict submission time, those who fail to submit homework after the deadline will be canceled the submission qualification, and it will not be transferred by the teacher's personal will; each module records are completely preserved, and the content and grade are completely transparent, as shown in table 2. If students have objections to the teacher's review, they can appeal, as shown in table 3.

Table 1. "Market Research" course

No.	Assessment module	Score income mode	Score
1	Attendance	There are 16 classes, the last of which is the final assessment, so the attendance of it does not account for the attendance score.	15
2	Item 1	Design a market survey questionnaire with the theme of "shared bicycle" after class	15
3	Item 2	Complete quantitative analysis homework	15
4	Item 3	According to the grouping of members, select a better design questionnaire to complete the survey in school, and write a simple research report.	15
5	Final assessment	Master all knowledge points and use comprehensive application and analysis methods for final paper examination	40

Pass Not pass

Attendance date: February 28, 2017 17:00 Already signed in 2
March 07, 2017 17:01 Already signed in 2
March 14, 2017 17:02 Already signed in 2
March 21, 2017 17:03 Already signed in 2
March 28, 2017 17:01 Already signed in 2
April 04, 2017 17:01 Already signed in 2
April 11, 2017 17:03 Already signed in 2
April 18, 2017 17:02 Already signed in 2
April 25, 2017 17:01 Already signed in 2
May 02, 2017 17:03 Already signed in 2
May 09, 2017 17:03 Already signed in 2
May 16, 2017 17:01 Already signed in 2
May 23, 2017 17:02 Already signed in 2
May 30, 2017 17:01 Already signed in 2
June 06, 2017 17:01 Already signed in 2
June 13, 2017 17:02 Already signed, Not Counting

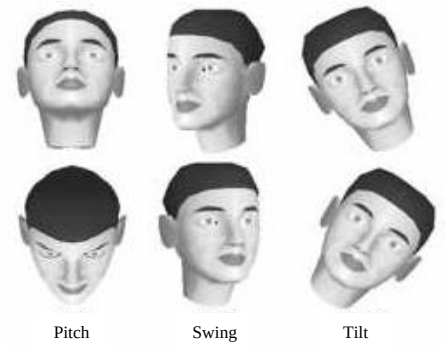

Figure 3. A high-tech face recognition system

Table 2. Interface diagram of student scores

No	Student ID	Name	Attendance 15 scores	Item 1, 15 scores	Item 2, 15 scores	Item 3, 15 scores	Final assessment 40 scores	Total score
1	2016112125	Zhiqiang Yu	8	Overdue submission	Overdue submission	Overdue submission	Failure to enter the examination	Cancel the examination qualification
				0	0	0	0	
2	2016114242	Zhiyuan Zhao	13	Shared bicycle	Quantitative analysis	Overdue submission	Zhiyuan Zhao's final assessment	72
				12	12	0	35	

Table 3. Interface diagram of student scores

	Score income mode	Score	Submission status	Obtain score	The date of obtaining score	Original papers	Questioning and complaint	Reply
1	Attendance	15	Already submitted	15	June 03, 2017	Click to query	No complaint	
2	Item 1	15	Already submitted	11	April 17, 2017	Click to query	No complaint	
3	Item 2	15	Already submitted	13	May 17, 2017	Click to query	Complaint	Maintain original judgment
4	Item 3	15	Already submitted	11	June 08, 2017	Click to query	No complaint	
5	Final assessment	40	Already submitted	33	June 15, 2017	Click to query	No complaint	
Total score		100	Already submitted	87	June 15, 2017	Click to query	Complaint	

5. Research Conclusions

This research has carried on the investigation to some teachers in the college, obtained the affirmation and approval of the research teachers, and solved the problems that need to be solved before the research.

One, it fully reflects the process of course assessment: it takes into account the needs of grade input of different

modules such as attendance, homework, oral examination, computer experiment and so on.

Two, it meets the individualized needs of different teachers for the process of course: on the basis of school management regulations, teachers can realize individualized settings according to the characteristics of the course.

Three, the grade input process is completely transparent: the black box process of past grade input is abandoned, and all the input process is open, reflecting its fairness.

Four, the grade in the process can be complained: reducing the error rate of grade input.

Five, it uses large data platform to fuse scattered data, which lays a foundation for the realization of intelligent campus.

This research is individualized and involves a wide range. It cannot be realized under the current traditional educational management system. However, with the acceleration of the construction of intelligent campus in colleges and universities, the platform of big data fusion can ultimately achieve this goal.

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