Research on Integrity Examination Management for Students in Private Universities

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Abstract. Private universities are an important component of national education, and the students trained by private universities play an indispensable role in the development and construction of the country. Therefore, the comprehensive quality of students in private universities is particularly important, and it can inject new vitality into enterprises and institutions. Among the comprehensive qualities, the integrity exam is particularly prominent. Guangzhou Institute of Science and Technology attaches great importance to the cultivation of students' comprehensive quality, and has taken measures such as publicity and blocking cheating tools in the integrity examination; By using convolutional neural networks to predict the effectiveness of conducting integrity examination activities, it was found through practical testing that these activities were successful. The satisfaction of students with integrity exams has been significantly improved, providing a good reference for the research of integrity exams for students in other private universities.

Keywords: Integrity exam, private universities, Construction of academic atmosphere.

1 Introduction

There are many types, large scales, and wide impacts of exams in private universities, and exam activities are receiving increasing attention[1][2]. This has also led to new situations and problems in the exam field, especially cheating in exams, which has become a common behavior in exam rooms, seriously disrupting exam order, damaging exam fairness, and causing serious impact on the school's exam culture[3]. On the one hand, teachers feel heartbroken that their painstaking education has been in vain; On the other hand, managers will also impose a series of internal sanctions on students who cheat in order to clean up the exam atmosphere, maintain exam discipline[4][5], and ensure fairness and justice, such as issuing criticism, canceling exam scores, and revoking their qualifications for evaluation[6][7]. Therefore, strengthening the management of integrity exams is particularly important[8][9][10].

Based on past work experience, an analysis and summary of the issue of integrity exams among students in private universities are as follows: firstly, the awareness of integrity is weak, and some students lack integrity awareness, viewing cheating as a

shortcut to achieving good grades. This mentality is particularly prominent in private universities, which may be related to factors such as differences in student foundations and academic pressure; Secondly, inadequate supervision: Some private universities have loopholes in exam supervision, such as unreasonable examination room settings, insufficient training for invigilators, and outdated technical means, which provide opportunities for students to cheat; Thirdly, the system is not sound: the examination system and punishment mechanism of some private universities are not yet perfect, and the deterrent effect on cheating behavior is insufficient, leading to some students taking chances; Fourthly, there is a lack of educational guidance: Some private universities have insufficient investment in integrity education and lack the cultivation and guidance of students' integrity awareness, which makes it easy for students to choose cheating when facing exam pressure. In order to reduce cheating in exams, we should strengthen integrity education, improve the examination system, strengthen supervision, create a good academic atmosphere, and enhance cooperation between families and schools.

2   The Current Situation of Integrity Exam Management in Private Universities

Although there has been some progress in the student's Learning ability and integrity exam in private universities in recent years, there are still some shortcomings. These shortcomings are mainly reflected in the following aspects:

The concept of exams has not been completely updated yet. Although many private universities often emphasize the importance of using exams as a starting point to improve teaching quality and enhance students' motivation and enthusiasm for learning, some students in private universities have weaker basic skills compared to those in public universities. Some students have poor grades in science and cannot manage themselves well after entering the university. In addition, it is rare for private universities to withdraw students who fail exams, which leads to a less positive attitude towards exams and the occurrence of pre exam assaults and cheating. This phenomenon has a negative impact on the comprehensive cultivation of students' overall quality.

3   Methods and Approaches for Cultivating Integrity in Exams

Exams are an important part of testing students' learning outcomes and a powerful means of promoting academic atmosphere. Private universities attach great importance to student exams, Guangzhou Institute of Science and Technology has always attached great importance to this aspect, especially as it is about to face undergraduate qualification evaluation. Therefore, strict control is needed. Our school first conducted extensive publicity and mobilization before the exam. The school displays promotional slogans in various teaching and examination buildings, demanding integrity in exams, self-restraint, and regulation; The leadership teams of secondary college attach great im-

portance to it, study the strategies for inspection and invigilation during the exam period, and explore ways to avoid cheating. On Thursday afternoon, during the college meeting, they explained to the teachers the importance of the final exam. The school requires zero cheating and demands that teachers attach great importance to invigilation; Each class counselor shall hold a themed class meeting on exam conduct and grading education before the 16th week, to study the spirit of the "Measures for Determining and Dealing with Student Exam Violations" and related documents. Educate students to establish the concept of honesty and fair competition, take honest exams, and strive to achieve zero cheating.

Strengthen the supervision and management during the exam. When students enter for the exam, they can only bring relevant documents, and all stationery required for the exam will be provided by the school. The invigilator will use metal detectors to check the entrance of the candidates. During the exam, all examination rooms used mobile phone signal interference devices, and the phones in all examination rooms were unable to receive any signals. At the same time, each college has established an examination working group to effectively strengthen the leadership and supervision of the examination work, implement the responsibilities of each link in the examination process, timely handle emergencies that occur during the examination process, and ensure the smooth completion of the examination work. The main party leaders of the college have direct leadership responsibility for the examination style and discipline of the college; The vice dean in charge of teaching has a supervisory responsibility for the organization of exams and invigilators.

Prediction of the effectiveness of integrity exams. Using deep learning algorithms, first collect management level data and student level data. Management level data have propaganda and education includes school level, secondary colleges, teachers, and counselors, while student level data includes self-learning comprehension, discussions among students, and students' level of self-awareness in self review before exams; Then, a method for evaluating educational effectiveness based on information entropy of management and student levels was proposed. The behavioral process data of students' pre exam review was collected, and the data was converted into images to extract image features for deep learning, resulting in exam integrity evaluation; Optimize the integrity evaluation of exams through both algorithms and data.

Dstribution Pattern of Integrity Examination. The distribution pattern of integrity examination activities for university management and student levels can be expressed by using information entropy, and then using entropy to recognize the behavior patterns of management and student levels. Through entropy distribution, it can be seen whether students are using more time periods for pre exam review. Finally, the effectiveness of integrity examination can be determined by entropy value. The distribution pattern used is shown in equation (1).

$$H(x) = -\sum_{j=0}^{M} p(x_j) \ln p(x_j) \tag{1}$$

M represents the set of all possible states, $p(x_j)$ represents the total number of integrity exam behaviors at a certain management level (or student level) divided by the total number of behaviors at all management levels (or student level). Therefore, using these two types of information entropy can express the degree of dispersion between the management and student levels of each university student's integrity exam behavior, identify the distribution characteristics of the management and student levels of integrity exam behavior, and further analyze and explore the characteristics of the student group and their relationship with exam integrity.

Multi feature Fusion Modeling. Lower The depth of student participation in the university integrity exam is modeled using a multi feature fusion method, as shown in Figure 1. Firstly, collect the original text data of students participating in various integrity exam activities, preprocess it, then extract high-order semantic features based on convolutional neural network deep learning architecture, and finally input it into a fully connected layer to achieve recognition of participation depth.
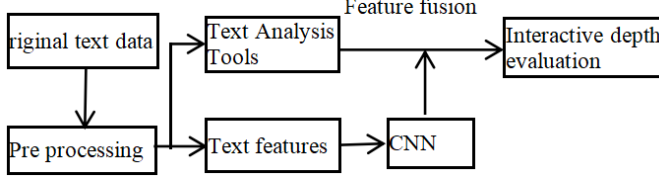
Fig. 1. Multi feature fusion modeling

Deep Learning Evaluation. Take the n parameters of the data participating in the integrity exam activity as one-dimensional vectors, convert them into grayscale images, and then input them into a convolutional layer. Edge filtering is applied to the input image matrix to extract 16 features, which are then input into a pooling layer to achieve feature selection and dimensionality reduction, leaving the most important features; Then input into the fully connected layer to ultimately achieve integrity exam evaluation. As shown in Figure 2.
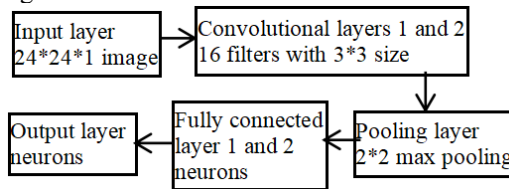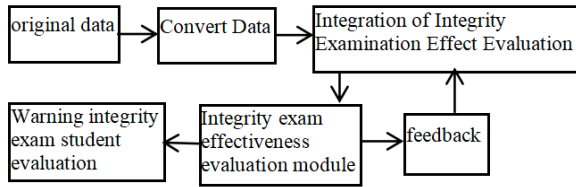
Fig. 2. Modeling for Evaluating the Effectiveness of Integrity Exams in Deep Learning

Optimize the Evaluation Effect. Considering the issue of imbalanced data collection for university students' integrity exams, it is necessary to optimize algorithm processing, convert the original data into a data format that can be processed, and lay the foundation for subsequent modeling and analysis. Then, generate warning samples based on the potential feature distribution of integrity exam warning students. Finally,

use convolutional neural network algorithm to construct an integrity exam performance evaluation model, as shown in Figure 3.

Fig. 3. Modeling Optimizing the modeling for evaluating the effectiveness of integrity exams

Prediction Results of Integrity Exam Effectiveness. Taking Guangzhou Institute of Science and Technology as an example, for the final exam on June 25, 2024, there are a total of 9 secondary colleges. The number of exam courses and exam classes is large, In order to establish a good examination atmosphere and discipline, and promote the construction of a good academic atmosphere, according to the spirit of the school's "Serious Examination Atmosphere and Discipline Work Plan" document, each secondary college arranges instructors to inspect every examination of the class they lead. Counselor inspects the implementation of the secondary college every day, and summarizes the daily exam situation. This prediction uses a convolutional neural network with 5 * 5 convolution kernels, 64 convolution kernels, step size set to 1, pooling kernels set to 2 * 2, pooling step size set to 2, pooling method set to average pooling, iteration number set to 10, and Adam optimizer used. predicted and actual number of student cheats for each secondary college are shown in Table 1.

Table 1. 6/25/2024 prediction and actual statistics of Exam Cheating Count.

Secondary College	Number of exam courses	Number of exam classes	Number and requency of student exam	Predict cheating's number and requency	actual cheating's number and frequency
College of Intelligent Manufacturing and Electrical Engineering	13	60	3660	1	0
College of Computer Science and Engineering	13	103	9127	1	0
College of architectural Engineering	8	21	2348	0	0
College of business administration	6	34	2496	0	0
College of Economics and Management	7	45	3205	0	0
College of Foreign Languages	6	51	1732	0	0
College of Humanities and Education	6	64	4300	1	0
College of Music and Dance	3	14	493	0	0
College of Art and Design	4	42	1910	0	0

From the above tables, it can be seen that the effect of integrity prediction is in good agreement with the actual effect, indicating that the integrity examination work and actions of Guangzhou Institute of Science and Technology are effective.

4   Conclusion

Comprehensive quality is very important for university students, especially for private undergraduate universities. Due to their own factors, students in these universities have certain shortcomings. Through the example of improving comprehensive quality at Guangzhou Institute of Technology, from four aspects: integrity examination, all-round education, national flag education, and academic atmosphere construction, after a period of time, the comprehensive quality of students at the university has been well improved. The university's approach provides good reference value for the comprehensive quality improvement of other private universities.

References

1. Dong Jiangying, F.: Research on the Management System of university Students Based on Comprehensive Quality Evaluation. university counselors 1(3), 67–71 (2021).
2. Tu Xudong, F., Construction and Implementation of a Behavior Portrait System Based on Student Comprehensive Quality Evaluation. Electronic testing 2(5), 84-85 (2021).
3. Xin Lihong, F., The Influence and Model Analysis of Student Comprehensive Quality Evaluation on Student Development: A Study Based on Grounded Theory. Shanghai Education and Research 2(6), 16-19 (2020).
4. Bao Wenna, F.: Research on the Relationship between Party Building Work in Universities and the Cultivation of Students' Comprehensive Quality, Time Report 2(3), 39-42 (2020).
5. Lu Siyu, F.: Research on the Construction of Second Classrooms in Universities Based on the Concept of 'Double Creation' Education. Forest teaching 2(5), 68-72 (2023).
6. Wu Yujuan, F., Importance of Examination Process in University Teaching Management. Farm staff officer 3(2), 268-271 (2020).
7. Lao Yi, F., Reasons for College Students' Violation and Cheating in Exams and Educational Countermeasures. Journal of Guangxi Normal University for Nationalities 36(6), 152-154 (2021).
8. Yang Jinzhi, F., A Brief Discussion on the Current Situation and Countermeasures of Integrity Examinations in Higher Education Institutions. Education and Teaching Forum 2(6), 194-196 (2022).
9. Asselman A , Khaldi M , Aammou S, F., Enhancing the prediction of student performance based on the machine learning XGBoost algorithm. Interactive Learning Environments 2(3), 74-77 (2021).
10. Romero C,MI Lopez, F., Predicting students' final performance from participation in online discussion forums. Computers & Education, 1(2), 458-462 (2021).