

# APPLICATION OF DATA MINING BASED ON IMAGE FEATURE FUSION MODEL IN TEACHING EVALUATION

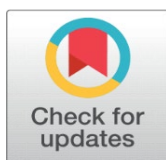
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## ABSTRACT

Nowadays, the modernization of education information is also an inevitable development path, and education management information systems have been widely used. The TQ and comprehensive evaluation of education and classrooms from the perspective of students and teachers. However, the traditional teaching assessment system has imperfect aspects. For example, the content of teaching assessment is too broad and the students' evaluation attitude is not objective, etc., which may cause the teaching assessment to lose its meaning. Using the methods of literature, mathematical statistics and questionnaire, this paper deeply studies the application of data mining theory and Image Feature Fusion technology. An application experiment of data mining based on Image Feature Fusion technology in teaching assessment is designed, established a decision table of key factors affecting teaching assessment, through the data preprocessing process and attribute reduction teaching method, the important factors affecting teaching evaluation are analyzed, preparation before class, etc. Finally, through the analysis of these factors, it is learned that students' dissatisfaction with the current teaching assessment system accounts for 47.87%, and the dissatisfaction of teachers accounts for 31.28%. Therefore, teachers also should strive to improve their professional skills and teaching quality.

**Keywords:** Image Feature Fusion, Technology, Teaching Assessment, Data Mining, Data Collection

## 1. INTRODUCTION

Talent training is the basic work of universities, and TQ is a basic indicator reflecting the level of universities and a key factor that every university should pay attention to. Classroom teaching is the main form for schools to achieve educational goals, and its effect directly affects students' learning quality. Therefore, the research and improvement of the teacher quality evaluation system is one of the hotspots and key points of the current university reform. Higher education quality management is very important.

Teaching evaluation is a process of making value judgments about the teaching process and outcomes in relation to the teaching objectives, and it is used to make teaching decisions. It's a method for determining the actual or potential worth of instructional activities. The process of assessing the worth of a teacher's teaching and students' learning is known as teaching evaluation. Instructors, students, teaching material, teaching techniques, teaching environment, teaching management, and other aspects in the teaching process are all evaluated, but the evaluation of students' learning effect and the evaluation of teachers' teaching work process are the most important. We may comprehend the status of all areas of teaching by evaluating the teaching effect, and so judge its quality and degree, effect, and flaw.

The previous education quality evaluation system was subjective and one-sided. Teacher managers only increase the evaluation of students based on the results of the teacher's evaluation, which will lead to the irrationality of the evaluation results and lead to the wrong decisions of the managers. The establishment and effective use of a scientific evaluation system is also very important in teaching management.

Villanueva K AT eaching evaluation is an important aspect of higher education. They found that when educators recognize and choose methods that have been proved to improve teaching and students' learning, the teaching evaluation system in engineering projects can be improved [Villanueva et al. \(2017\)](#). Xuehui utilize BPFourier basis function accelerates the computational convergence of BP neural network algorithm, and a new BP Fourier algorithm is proposed for the evaluation of complex systems [Pei and Pei \(2017\)](#). Li w proposed an Image Feature Fusion model based on neighborhood decision theory under the framework of Image Feature Fusion model. Their experiments show that the classification method they proposed is effective. However, in practical application, this method is restricted by many factors and is difficult to be applied smoothly [Li et al. \(2016\)](#).

The innovation of this paper lies in the combination of theoretical research and empirical research, the combination of the actual background of teaching evaluation and the theoretical background of data mining, and the current situation of empirical investigation.

## 2. APPLICATION METHOD OF DATA MINING BASED ON IMAGE FEATURE FUSION MODEL IN TEACHING EVALUATION

### 2.1. DATA MINING

#### 1) The definition of data mining

Data mining, also known as data mining, its main task is to discover potential knowledge and useful information that people cannot know in the database. It is generally considered that data mining is an important link, which is an important step in using specific data mining algorithms to effectively extract useful patterns from the database [Cho and Cho \(2016\)](#).

There are many definitions of data mining. Since 1989, as people's research continues to deepen, the definition of data mining has been continuously improved [Lara-Subiabre and Angulo-Brunet \(2020\)](#). At present, the more commonly accepted definition is a method of digging out a large amount of data that is effective and potentially useful for people, and does not need to undergo complex processing to carry out certain data analysis [Xu \(2017\)](#). In short, data mining is a new and wide-ranging interdisciplinary problem. Its development and application involve various scientific fields, especially databases, parallel computers, mathematical statistics, data warehouses, artificial intelligence and other fields have a close relationship [Han \(2017\)](#). Determining the mining object, data preparation, data mining, result analysis, and the unique mining process are the essential steps in the data mining process.

#### 2) Objects of data mining

In principle, data mining can process any type of data information, including relational databases, distributed databases, transaction databases, and so on. There are no restrictions on the structure of the data to be mined, whether

it is structured or semi-structured, or even heterogeneous data on the network [Huang \(2017\)](#). Several important objects commonly used in data mining are introduced below:

A relational database is a type of database that stores information in A relational database is a set of linked tables. A table is a relationship, and each table has its own name [Mei \(2017\)](#). Each tuple in the table represents an item identified by a unique key, and it contains a set of attributes or fields and stores a huge number of tuples. In relational databases, the structured query language can be used to query and access the database. The query language can realize the main operations of data connection, selection, projection, etc., and can realize data processing such as grouping and sorting of data [Henry \(2017\)](#), [Karthik et al. \(2016\)](#). 2) Data warehouse. Data warehouse, abbreviated as data warehouse, is to better realize the analysis of data, establish a warehouse of valid data, and then process the data systematically, statistics, and summarize the data obtained to ensure that the information in the data warehouse can be better Support decision analysis [A et al. \(2016\)](#). The comprehensive data processing environment effectively compensates for the shortcomings of traditional databases. The data warehouse is based on a comprehensive and complete information application environment, not a replacement for the database. It is mainly used for data analysis and more comprehensive support for high-level decision analysis. Nowadays, data warehouse and data mining are gradually combined to provide a unified and complete mass of information for data mining, and effectively solve the problems caused by independent databases, knowledge bases, and model libraries. Defective issues [Ju et al. \(2017\)](#). 3) Transaction database. The transaction database is composed of a collection of transactions, and each entry in the database represents a transaction [Chakhar et al. \(2016\)](#). Usually, a transaction includes a unique transaction identifier (student identifier, etc.) and a list of transaction elements (student name, etc.). There may be additional tables associated with transaction databases containing other transaction information. Transaction databases are usually used to extract data from related rules, such as "basketball data analysis", which is very effective [Luan et al. \(2016\)](#).

### 3) Classification of data mining

The accuracy of data extraction results mainly depends on the technology adopted by the data mining system [Wen et al. \(2016\)](#). In addition, it also includes the type and scale of data mining. The more technology used, the higher the accuracy. Data mining is related to multiple industries and multiple fields, so there are many classification methods [Lu et al. \(2016\)](#).

According to different classification standards, there are many ways to classify data mining. Data mining can be classified according to database types, according to discovery patterns, and according to technology used.

- 1) **According to the type of database**, related databases and transaction databases are the most general databases. Therefore, data mining can be classified into relational, transactional, object-oriented, activity, space, time, text, multimedia, etc. [Buczak and Guven \(2017\)](#), [Carmichael et al. \(2016\)](#).
- 2) **Classification according to the discovery mode:** (1) Association rule mining. (2) Summary rule mining: It is mainly based on mining the database at different levels from various angles to obtain summary data such as the number, average, maximum, and minimum of items. The mining results are expressed as feature rules, crosstabs or statistical charts, etc. (3) Classification rule mining: It is mainly through mining the known training set to obtain the model for the known training set, and then apply these models to the new data to classify the new data. (4) Clustering rule mining: It is mainly to classify items by mining their characteristic attributes. The clustering rules do not need a known training set, and can directly mine items. (5) Predictive analysis. (6) Trend analysis. (7) Deviation analysis: mainly to find a series of discriminants to distinguish different types set by users.
- 3) **Classified according to the technology used:** (1) Artificial neural network: This is a model with independent learning function and self-adaptation function. It can be trained through input and output data sets, analyze basic laws, and use these rules to predict and generate new the input. Artificial neural networks can simulate neural networks to deal with the dispersion of parallel information and complete mining tasks such as pattern recognition. (2) Decision tree: Use a tree to represent the decision set, generating rules similar to what conditions get what value, which is very suitable for mining classification rules, and decision trees can directly process non-numerical data, compared with artificial neural networks, Reduce the workload of the pretreatment part to a certain extent. (3) Genetic algorithm: a computer model that simulates Darwin's biological evolution theory is a technology that simulates the physical process and explores the best solution to biological evolution. (4) Nearest neighbor technique: It is also known as K nearest neighbor method by combining with the most

similar K records to determine a new record. Mainly used for tasks such as clustering and deviation analysis. (5)  
 Rule induction: find useful rules through statistical methods. The import of rules is a very widely used technique in data extraction.

## 2.2. DATA MINING OF IMAGE FEATURE FUSION MODEL

In the multi-data mining method, the image feature fusion theory is a new type of intelligent information processing method. The favorable information is synthesized into a high-quality image to improve the utilization of image information, improve the accuracy and reliability of computer interpretation, improve the spatial resolution and spectral resolution of the original image, and facilitate monitoring. It is an effective data way of mining.

Definition 1.1 Given a decision table  $M \leq V, B = C \cup D, U, f >$ , for each attribute subset  $A \subseteq B$ , define an unclear relationship  $IND(A)$ , namely

$$IND(A) = \{(x, y) | (x, y) \in V \times V, \forall a \in A(a(x) = a(y))\} \tag{1}$$

Obviously, the unclear relation is an equivalence relation.

Definition 1.2 Given a decision table  $M \leq V, B = C \cup D, U, f >$ , for each subset  $X \subseteq V$  and unclear relationship  $IND(A)$ , then, according to the basic set relationship of A, the upper and lower approximate set of X can be expressed as:

$$A^-(X) = \bigcup_{Y_i \in V / IND(A) \wedge Y_i \cap X \neq \emptyset} Y_i \tag{2}$$

$$A_-(X) = \bigcup_{Y_i \in V / IND(A) \wedge Y_i \subseteq X} Y_i \tag{3}$$

Definition 1.3 Suppose V is a universe of discourse, M and N are two equivalence relation families defined on V, and the M positive range of N is denoted as  $POS_M(N)$ , defined as:

$$POS_M(N) = \bigcup_{X \in \frac{V}{N}} P_-(X) \tag{4}$$

Definition 1.4 Suppose V is a universe of discourse, and there are two equivalence relation families of M and N in the domain of V, then the independent subset of N of M Q has

$$POS_Q(N) = POS_M(N) \tag{5}$$

Then Q is called N reduction of M.

Definition 1.5 Define the decision table  $M \leq V, B = C \cup D, U, f >$ , the attribute set is  $B = C \cup D$ , the condition attribute and the decision attribute set are defined as subsets C and D respectively, then the credibility  $CD(H \rightarrow I)$  of the decision rule  $H \rightarrow I$  is defined as:

$$CD(H \rightarrow I) = \frac{|X \cap Y|}{|X|} \tag{6}$$

Definition 1.6 Define the decision table  $M \leq V, B = C \cup D, U, f >$ . Let the improved Skowron discernibility matrix be L, and the discernibility matrix elements in L can be defined as:

$$L_{xy}^s = \{a \in C | f(x, a) \neq f(y, a) \text{ and } w(x, y) = 1\} \tag{7}$$

among them,  $x \in V, y \in V$

$$w(x, y) = \begin{cases} 1, x \in POS_C(D), y \notin POS_C(D) \\ 1, x \notin POS_C(D), y \in POS_C(D) \\ 1, x, y \in POS_C(D), d(x) \neq d(y) \\ 0, \text{others} \end{cases} \tag{8}$$

In order to illustrate the correctness of the existing information in  $V$ , the concept of approximate correct rate is proposed. The rough accuracy  $A$  is defined as follows.

$$A_R(X) = \frac{|RX|}{|X|}, A_R(X) \in [0,1] \tag{9}$$

Use  $AR(X)$  to define the roughness of  $X$ :

$$\beta_R(X) = 1 - A_R(X) \tag{10}$$

Roughness is the opposite of accuracy, and roughness reflects the degree of incomplete knowledge. There are the following types of parameters for measuring specification attributes:

$$Support(P \Rightarrow Q) = |\{V: P \cup Q \in V, V \in D\}|/|D| = Support(P \Rightarrow Q) \tag{11}$$

Confidence is used to measure the reliability of related rules. The expression is:

$$Confidence(P \Rightarrow Q) = \frac{Support(P \cup Q)}{Support(P)} \tag{12}$$

Expected confidence is the expected support rate of the project. Excluding other influencing factors, the probability is expressed by the following formula:

$$Ex - Confidence(P \Rightarrow Q) = Support(Q) \tag{13}$$

The degree of interest is also called the degree of relevance, which is the ratio of the degree of trust to the expected degree of confidence, and represents the effect of the object group used to display the  $Q$  object combination.

$$Correlation(P \Rightarrow Q) = \frac{Support(P \cup Q)}{Support(P)} \times Support(Q) \tag{14}$$

In the research of image feature fusion model, the three aspects of decision table discretization, attribute reduction and value reduction cover the core content of image feature fusion model. Attribute reduction mainly completes the simplification of decision table, from From the perspective of constant classification ability, it can be roughly divided into attribute reduction algorithms based on algebraic view (keep the positive area of the decision table unchanged) and attribute reduction algorithms based on the information view (keep the conditional entropy of the decision table unchanged). [Figure 1](https://wenku.baidu.com/view) shows the form of data mining (this figure is borrowed from Baidu Gallery: <https://wenku.baidu.com/view>)

Figure 1



Figure 1 Data Mining form Diagram

### 2.3. TEACHING ASSESSMENT

Educational evaluation is an evaluation index that measures the educational process and educational results. It refers to the process of making value judgments based on educational goals, referring to scientific benchmarks, and using effective technical means. Educational evaluation: it is the measurement, analysis and evaluation of education quality. Education evaluation generally includes evaluation elements such as teacher quality, education process, education content, education methods, education quality, education effect, education management, etc., mainly the evaluation of the impact of student learning and the evaluation of the education process. Teacher evaluation has two main aspects: evaluation of teacher education activities and evaluation of students' learning achievements.

is accompanied by classroom teaching. Its functions are as follows: (1) Diagnostic function: The evaluation of classroom teaching effect can determine the quality and level of teaching, as well as the effectiveness and defects of all aspects of teaching. Comprehensive and objective evaluation items can explain the reasons for the poor academic performance of most students and find out the main reasons. Therefore, educational evaluation is equivalent to the educational function of strict scientific diagnosis. (2) Motivation: Through educational evaluation in the classroom, the educational results can reflect the academic performance of teachers and students, can effectively promote learning in the classroom, and strengthen the specific supervision and influence of teachers and students. (3) Moderating effect: Through educational evaluation in the classroom, teachers and students can clearly know their own education and learning situation, so the review plan can educate based on feedback information and adjust teaching actions to achieve the set goals. (4) Teaching function: teaching assessment itself is also a kind of teaching activity. Through this activity, the development of students' knowledge, skills, intelligence and morality can be promoted.

The development trend of educational evaluation: (1) In the subject of evaluation, the situation of passive evaluation has changed with the combination of self-evaluation and others' evaluation as the center. (2) The educational purpose of evaluation is emphasized in the evaluation function. The goal of educational evaluation is to assess and steer teacher training. (3) Pay attention to practice in the evaluation process.

The Importance of Classroom Teaching Evaluation: (1) The centralized teaching method is used in the classroom to maximize the teaching effect. Evaluators and teachers can have a better understanding of a student's entire performance and basic conditions, such as scientific thinking, basic abilities, learning attitude, knowledge base, and so on, through educational evaluation in the classroom. In this approach, it is possible to properly examine the pupils' current position and choose a teaching method that is appropriate for them. (2) Able to better improve and develop classroom teaching

reform. We can use classroom teaching assessment to view the shortcomings and advantages of classroom teaching from multiple angles. And timely research and analysis of unreasonable parts, and find solutions. Continuously develop and improve the reformed educational experiment in the process of continuous experiment to make it play a better role in education.

### 3. APPLICATION EXPERIMENT OF DATA MINING BASED ON IMAGE FEATURE FUSION MODEL IN TEACHING EVALUATION

On the one hand, it can effectively promote the improvement of education and teaching evaluation; . Design an application model of data mining based on image feature fusion model in teaching evaluation. Through the data mining method of the image feature fusion model, the key factors affecting the TQ evaluation results are found out, so as to propose ways and methods to improve TQ in a targeted manner, and promote the improvement of teaching quality.

#### 3.1. DETERMINE THE MINING OBJECT AND TARGET

By analyzing the data and data of the evaluation feedback of teachers in the first semester of the 2018-2019 academic year of Y University, we have given the evaluation levels of all teachers according to the situation, including "very satisfied", "satisfied", "indifferent", "Dissatisfied", "very dissatisfied". In this example, we analyze the grade evaluation and indicators in the teaching assessment table, hoping to discover the implicit relationship, and determine the key factors, and finally draw a meaningful conclusion.

#### 3.2. DATA COLLECTION

There are many aspects that affect teaching assessment. Exploring from the teacher's personal factors, possible influencing factors include: gender, age, educational background, title, published papers, etc.; from the perspective of teacher teaching, the possible influencing factors are: teaching attitude, Teaching content, teaching methods, teaching skills, etc., so as to determine whether the teaching effect reaches the goal, whether the students are satisfied, etc.

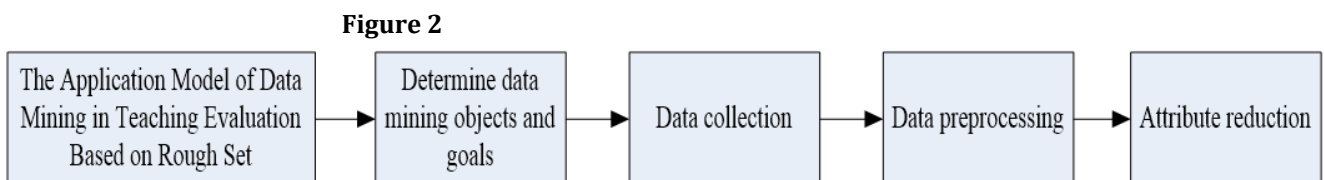
#### 3.3. DATA PREPROCESSING

The data mining of the image feature fusion model must first express these influencing factors in the decision table and carry out discretization processing.

#### 3.4. ATTRIBUTE REDUCTION

Attribute reduction is to filter these influencing factors on the basis of not affecting the whole system, so as to leave the key or main factors, so as to simplify the original system to the greatest extent. The image data collected by multi-source channels about the same target is processed by image processing and computer technology to maximize the extraction of favorable information in each channel, and finally synthesized into a high-quality image, which is the core content of the image feature fusion model. . The attribute reduction in this paper adopts the discriminative matrix reduction algorithm.

The reduced decision table has the same function as the one before reduction, but the reduced decision table has fewer conditional attributes, which is very beneficial for the next step of rule generation. This article discretizes the above data collection the latter teacher evaluation table performs attribute reduction. The algorithm can be implemented in Matlab. [Figure 2](#) is a technical roadmap.



**Figure 2** Technology Roadmap

## 4. APPLICATION ANALYSIS OF DATA MINING BASED ON IMAGE FEATURE FUSION MODEL IN TEACHING EVALUATION

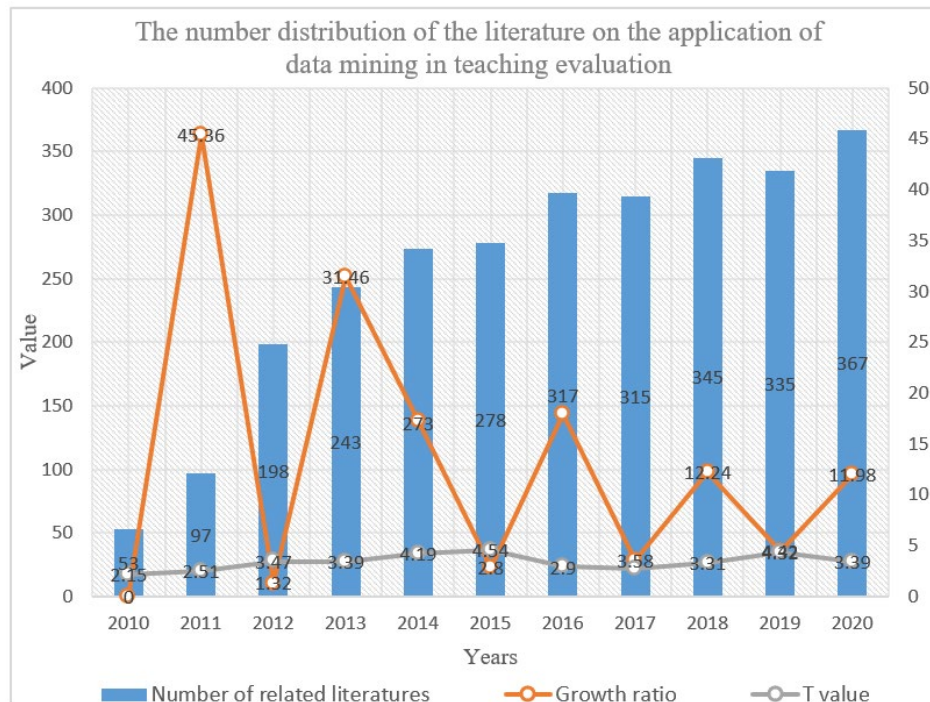
### 4.1. RESEARCH STATUS OF DATA MINING BASED ON IMAGE FEATURE FUSION MODEL IN EDUCATION EVALUATION ANALYSIS

There are many methods of data mining, the most commonly used is data cluster analysis. Therefore, the application research of image feature fusion model data mining is still relatively small, but the application in medicine, education and other industries is relatively slow. This paper adopts the literature comparison method to better understand the application and research status of image feature fusion model data mining in classroom evaluation. Table 1 and Figure 3 reveal the results.

**Table 1**

Table 1 The Number Distribution of the Literature on the Application of Data Mining in Teaching Assessment		
Years	Number of related literatures	Growth ratio
2010	42	-
2011	86	44.25
2012	198	1.21
2013	243	30.35
2014	273	16.23
2015	278	2.79
2016	317	16.86
2017	315	3.58
2018	345	12.24
2019	335	4.42
2020	367	11.98

**Figure 3**



**Figure 3** The Number Distribution of the Literature on the Application of Data Mining in Teaching Assessment

## 4.2. RECOGNITION ALGORITHM RESEARCH DATA RATE IMAGE FEATURE FUSION MODEL MINING

Table 2

Table 2 The Correct Recognition Rate of the Four Algorithms on the Data Set				
Data set	KNN	SVM	CART	Method of this article
Zoo	0.9218	0.9604	0.9109	0.9207
Iris	0.9601	0.9468	0.9534	0.9466
Wine	0.9719	0.4886	0.8653	0.9606
Machine	0.8462	0.6491	0.8174	0.8895
Average recognition rate	0.8818	0.7425	0.8386	0.8849

Figure 4

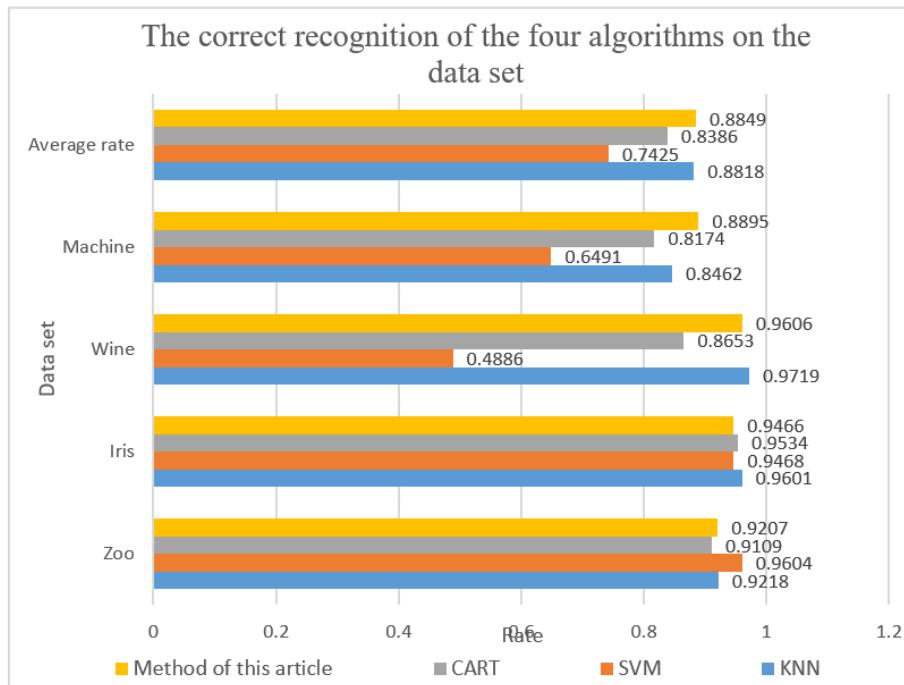


Figure 4 The Correct Recognition Rate of the Four Algorithms on the Data Set

From the test results of the four data sets in Table 2 and Figure 4, the method in this paper, KNN and CART are equivalent in the average correct recognition rate of the UCI data set, and the correct recognition results are slightly better than KNN and SVM, It fully shows that the image feature fusion model data mining method proposed in this paper is an effective method.

## 4.3. APPLICATION RESEARCH AND ANALYSIS OF DATA MINING BASED ON IMAGE FEATURE FUSION MODEL IN TEACHING EVALUATION

Table 3

Table 3 TQEvaluation Form		
Evaluation index	Evaluation Criteria	Code
	The teaching materials have novel ideas and can reflect the latest academic trends	A1

Preparation before class	The teaching plan is comprehensive and strictly implements the requirements of the syllabus	A2
	Focused, clear logic	A3
Teaching content	The teaching content is not promulgated according to the text, and the teaching content can be supplemented in time according to the academic dynamics	A4
	Explain the important and difficult points in a simple way, easy to understand	A5
	Teaching closely integrated with current hot spots	A6
	Reasonably analyze the application of theoretical knowledge in practice	A7
Classroom organization	The course content is distributed evenly and organized	A8
	The teaching time is tight and reasonable	A9
	Heuristic teaching	A10
Teaching attitude	Teacher-student interaction	A11
	Able to go to school on time	A12
	The lectures are rigorous and not exaggerated	A13
	Proactively seek student questions and answer patiently	A14
Teacher's length of service	Less than 5 years	A15
	5-10 years	A16
	More than 10 years	A17
Teacher title	primary	A18
	intermediate	A19
	advanced	A20
Teaching effect	The correct rate of answers to teachers' classroom teaching knowledge reached 80% or more	A21
	Most students can listen carefully	A22
	Classroom is in good order	A23

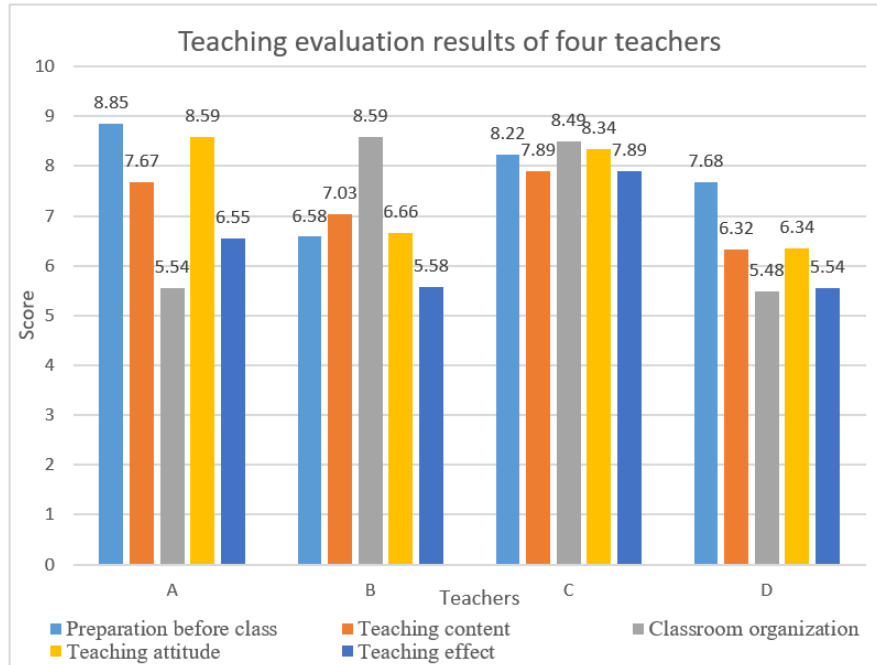
Table 3 is the evaluation form of teaching quality. The TQevaluation table in this article is mainly selected from the three aspects of teachers, students, and teaching. From the perspective of teachers, the length of service of teachers, the professional titles of teachers, etc.; from the perspective of students and teaching, The teaching effect, the teacher's teaching attitude and other aspects are evaluated.

After image feature fusion model attribute reduction, the remaining key indicators that affect teaching assessment can be: pre-class preparation, teaching content, classroom organization, teaching attitude and teaching effect. The following article will conduct in-depth research and analysis on these aspects..

**Table 4**

Table 4 Teaching Assessment Results of Four Teachers					
Evaluation factors	Preparation before class	Teaching content	Classroom organization	Teaching attitude	Teaching effect
A	8.85	7.67	5.54	8.59	6.55
B	6.58	7.03	8.59	6.66	5.58
C	8.22	7.89	8.49	8.34	7.89
D	7.68	6.32	5.48	6.34	5.54

**Figure 5**



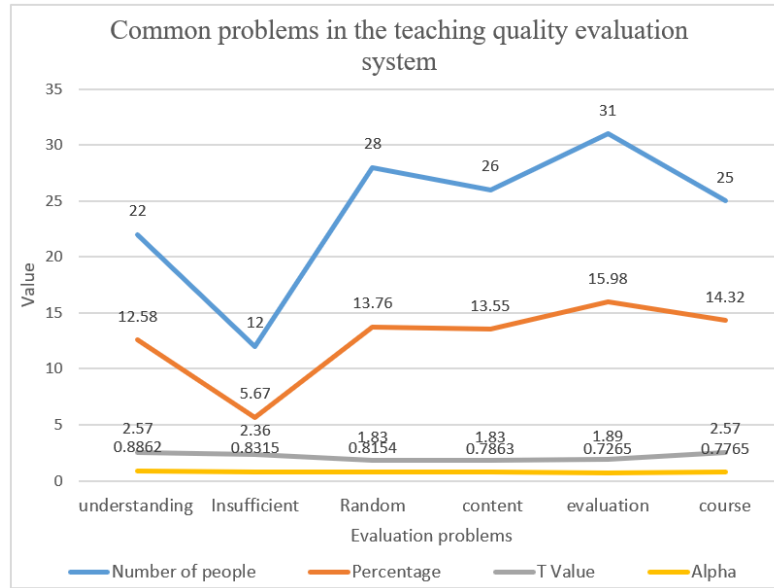
**Figure 5** Teaching Assessment Results of Four Teachers

This article randomly selects four teachers' teaching assessment results, as shown in Table 4. From Table 4 and Figure 5, it can be seen that the teacher A with the best preparation before class scores 8.85 points, and the total score is 10 points; the best teaching content is teacher C with 7.89 points, the highest score in classroom organization It is 8.59 points for teacher B and 8.59 points for teaching attitude of teacher A. Taken together, the best teaching effect is the C teacher, with a score of 7.89.

**Table 5**

Table 5 Common Problems in theTQEvaluation System				
Evaluation problems	Number of people	Percentage/%	T Value	Alpha
Insufficient understanding of evaluation	22	12.58	2.57	0.8862
Insufficient evaluation	12	5.67	2.36	0.8315
Random evaluation	28	13.76	1.83	0.8154
Evaluation content is too broad	26	13.55	1.83	0.7863
Incomplete evaluation system	31	15.98	1.89	0.7265
Unfair course evaluation	25	14.32	2.57	0.7765

**Figure 6**



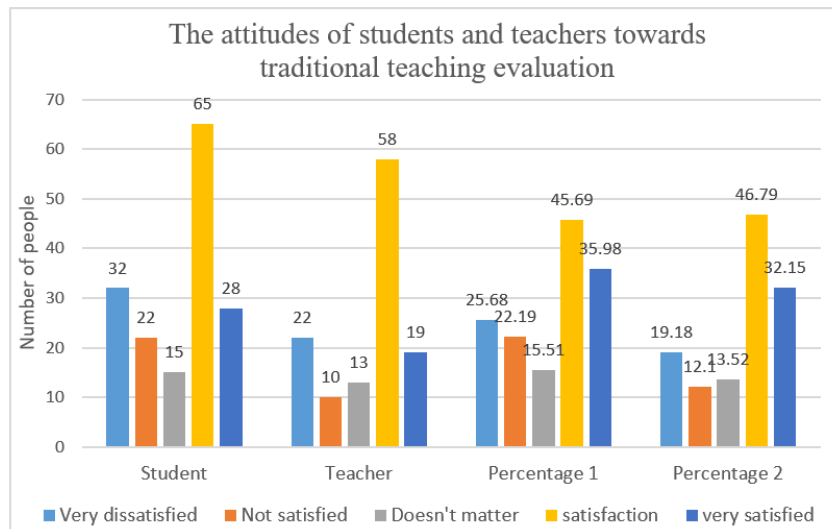
**Figure 6** Common Problems in theTQevaluation System

It can be seen from [Figure 6](#) and [Table 5](#) that there are many problems in traditional teaching assessment. In summary, the main problems are: students' lack of understanding of evaluation, insufficient breadth of evaluation, and poor attitude towards evaluation., The content of the evaluation is too broad, the evaluation system is not perfect, and so on. From the specific data, 15.98% of the students think that the evaluation system is not perfect, indicating that the students have realized that the traditional evaluation system is problematic. Therefore, a major innovation in teaching assessment is imminent.

**Table 6**

Table 6 The attitudes of Students and Teachers Towards Traditional Teaching Assessment					
Object	Very dissatisfied	Not satisfied	Doesn't matter	satisfaction	very satisfied
Student	32 ( 25.68 )	22 ( 22.19 )	15 ( 15.51 )	65 ( 45.69 )	28 ( 35.98 )
Teacher	22 ( 19.18 )	10 ( 12.10 )	13 ( 13.52 )	58 ( 46.79 )	19 ( 32.15 )

**Figure 7**



**Figure 7** The Attitudes of Students and Teachers Towards Traditional Teaching Assessment

As can be seen from [Figure 7](#) and [Table 6](#), students and teachers are mostly dissatisfied with traditional teaching assessment. From the perspective of students, teaching assessment is mainly based on scores, and does not fully pay attention to the students' personal growth, students' mental health, and living conditions. From the perspective of teachers, students' random evaluation will also lead to teachers' loss Confidence in teaching.

## 5. CONCLUSION

The image feature fusion model is the product of the fusion of computer technology and network technology. It is a strategic technology leading the innovation of the information industry in the future, and has attracted widespread attention at home and abroad.

Use literature method, mathematical statistics and other methods to deeply study the theoretical knowledge of data mining and image feature fusion model, understand the advantages and disadvantages of existing teaching assessment, and propose targeted improvements. This paper designs an application experiment of data mining based on image feature fusion model in teaching evaluation, and analyzes it from the perspectives of teachers and students.

The key factors that affect teaching assessment mainly include pre-class preparation, teaching attitude, teaching content and teaching methods, which all affect the teaching effect. Therefore, teachers should improve their own teaching ability and improve work efficiency, but also pay attention to teaching methods and teaching content. In addition, we should also pay attention to the students' learning and living conditions, and should not be limited to academic performance.

The data source and data volume selected in this paper are relatively small, and the knowledge obtained by mining may not be able to meet the needs of university officials. TQimprovement and evaluation are a long-term process. The evaluation data and related data will continue to be accumulated as the TQmonitoring system is improved and TQevaluation is deepened. Further research in the following areas can be carried out in the future: (1) Incorporate evaluation data into the system, such as teacher mutual evaluation and supervision group expert assessment, create a multi-dimensional data model, and conduct data mining. (2) Improve the efficiency of data mining in practical applications through the improvement of data mining algorithms.

## 6. AUTHOR'S CONTRIBUTION

All authors listed have made a substantial, direct, and intellectual contribution to the work and approved it for publication.

## CONFLICT OF INTERESTS

None.

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