

The Influence of E-Book Teaching on the Motivation and Effectiveness of Learning Law by Using Data Mining Analysis

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ABSTRACT

This paper studies the motivation of learning law; compares the teaching effectiveness of two different teaching methods, e-book teaching and traditional teaching; and analyses the influence of e-book teaching on the effectiveness of law by using big data analysis. From the perspective of law student psychology, e-book teaching can attract students' attention, stimulate students' interest in learning, deepen knowledge impression while learning, expand knowledge, and ultimately improve the performance of practical assessment. With a small sample size, there may be some deficiencies in the research results' representativeness. To stimulate the learning motivation of law as well as some other theoretical disciplines in colleges and universities has particular referential significance and provides ideas for the reform of teaching mode at colleges and universities. This paper uses a decision tree algorithm in data mining for the analysis and finds out the influencing factors of law students' learning motivation and effectiveness in the learning process from students' perspectives.

KEYWORDS

Data Mining, E-Book, Effectiveness of Learning Law, Law Students, Motivation and Effectiveness, Teaching in Law

INTRODUCTION

Since colleges conduct educational reform, schools focus more on the teachers' teaching way and teaching devices. In particular, with the purpose of cultivating the application-oriented graduates in law, teachers in law majors begin to value the students' practical application effect of professional knowledge very much (Liu et al., 2018). Meanwhile, the graduates in law need to acquire the ability of learning the professional theoretical knowledge. More importantly, they need to have good analytical skills, so that their professional knowledge learned from the textbook can be flexibly employed to solve specific problems in reality, so as to provide some help for colleges and universities to promote the library to explore the construction of e-book resources.

Traditional Teaching Method and E-book Teaching

However, in the traditional teaching process, most of the methods used are “teachers talk about content, students listen to classes, and then the teachers test students' learning effectiveness” (Bauer et al.,

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2016), but for the applied discipline of law, it is not enough to interpret laws and theories only. Schools also need to cooperate with specific skills training, integrate theory with practice, and finally be able to use laws flexibly. Therefore, student-centered teaching becomes increasingly popular in schools, which can cultivate students' awareness of self-learning and inquiry (Curşeu et al., 2018). Since the information technology develops rapidly, schools are gradually promoting the related technologies' construction and enhancing students' awareness and capability to apply the information technology to knowledge acquisition, problem analysis and solution.

The emergence of e-books provides a good opportunity for accelerating the construction of information technology (Abdel-Basset et al., 2018; Niu et al., 2021). E-books not only make students break through the original way of reading and acquiring knowledge, but also make students more interested in learning content, effectively change their learning motivation, assist in enhancing their capability of applying professional knowledge, expand their knowledge, and realize the cultivation of application-oriented graduates in law.

In terms of e-book teaching, it is essential to train students' excellent information acquisition literacy and focus on the generation of capability and intelligence. When teachers conduct teaching activities in e-book teaching, the atmosphere in the classroom can be greatly regulated. In this way, students will be more involved in following the teacher's ideas, which is conducive to the improvement of the learning effect; in addition, students' personalized ability can be well cultivated in the e-book teaching. Furthermore, after the e-book teaching appears, the crucial and difficult points during teaching can be highlighted. After the technology and wisdom are well combined, the boring classroom can become interesting. The teaching content that are difficult to understand before will become easier. There will be more communication between teachers and students in class. Students will be more willing to devote themselves to classroom activities. Big data technology is introduced into e-book teaching. Then, the data that are generated in the learning process of students can be collected, counted, processed, and evaluated by teachers with the assistance of this technology. In this way, students' personalized learning behavior in learning activities can be changed. To sum up, the introduction of big data into e-book teaching becomes a popular development direction.

E-book teaching can assist law majors in law learning. In addition, it can provide confidence for college library services in finding new resources. It has the ability of meeting various different and changing requirements of readers, accelerates the reading without paper, increases the resources in library and adapts to the new era.

Research Background and Significance of Big Data Analysis

A colossal data system is formed in colleges due to the continuous development of information work, thus resulting in the "big data" in colleges (Benešová and Tupa, 2017; Gurusamy and Vijayakumar, 2020; Yang et al., 2021). The efficiency of production and management in different fields can be greatly optimized by analyzing the big data. Besides, the related cost can be reduced to a large degree. Colleges can comprehensively mine and evaluate the data through the data diversification. In this way, the value involved in the data can be found, teachers can decide the optimal teaching methods, and the leaders can be guided to better perform decision-making.

As a kind of crucial strategy, e-book teaching has a close relationship with the reform of China's higher education, professional talent training, and teaching method optimization. Moreover, it is a good development direction for enhancing the educational effect, improving the educational quality, optimizing the teaching system and promoting the educational development. Applying educational development to the big data environment will become a trend of the times (Zhou et al., 2013; Yi, 2021). This research pays more attention to the deep combination of new technology and education in the modern society, explores the e-book teaching mode in the environment of big data, and designs and implements relevant e-book teaching cases. It is crucial for the innovation of teaching mode in education-related field.

In the past research, there is little research on the use of big data analysis for education; most researches focus on the evaluation of students' performance. During the process of teaching, students' learning motivation and effectiveness evaluation are quite crucial for the students' learning and university education and teaching. Therefore, the effectiveness of e-book teaching can be evaluated through the use of data analysis technology, which will help teachers to change their teaching methods. In this way, students majoring in Law will have a deeper understanding of laws and theories in the learning process, and enhance the ability of flexible use of knowledge in law to evaluate and deal with problems. The qualitative research and quantitative research are combined to ensure the objective evaluation of the effectiveness of e-book teaching which lays the foundation for the further reform of higher education.

LITERATURE REVIEW

Relevant Literature Research

At present, e-book teaching methods are seldom used in the domestic education field. Most of colleges and universities in China use paper textbooks. Occasionally, some classes use the iPad for homework.

E-books' appearance makes people have more accesses to various information, and massive related excellent achievements have been made due to the rapid development of e-book. The combination of three networks expands the range of e-book reading terminals and makes the e-book industry get a better development without limited space. Based on the teaching design's importance and the main principles for e-book teaching, Mergel (2016) used analyzing, designing, developing and optimizing to make e-books. However, most e-book related research in the world is about the types and ways to develop the e-book. Few researchers study the combination of e-books with education in colleges.

Massive researchers have conducted the study on data mining technology in related big data analysis. Yuan Xiaolei proposed the teaching deficiencies and gave the related opinions by evaluating the colleges' course design. Chen et al. (2018) made a summary of the teaching data's development during 1995-2005 and 4 different utilizations of data mining in teaching were proposed, which were statistics, visualization, clustering analysis and anomaly detection, decision tree and association rules, and text mining. Agrawal and Agrawal (2015) evaluated the factors that exert an influence on the achievement, and performed data mining by using clustering algorithm and association rules. In this way, the relationship among the each part's achievement, the overall achievement, and the affiliated departments can be found.

Song and Ying (2015) evaluated the students' learning motivation from the aspect of psychology, and classified it as fusion motivation and instrumental motivation. Overall, it is an inspiration for a lot of scholars, thus making them focus on the elements that exert an influence on learning motivation, which might become the curriculum teaching and the cognitive ability of students. After the students of non-English majors were investigated, Tayefi et al. (2017) made a summary of 7 different types of learning motivation of college students. The results suggest that higher motivation indicates the higher effort degree. Overall, the learning motivation exploration of researchers from foreign countries was primarily theoretical research. However, studies in China were primarily about students' English learning.

e-Book Teaching

E-books generally refer to the storage of books in the form of electronic files in a digital way, which can display the contents in a more intuitive way (such as video, audio, and pictures), and provide people with reading and learning through electronic devices (Yoo et al., 2016; Yu et al., 2021; Liu et al., 2021). When e-books are introduced into the college classroom, they evolve into e-textbooks. It is a new type of textbook, a product of cooperation between traditional textbooks and electronic information technology. It provides students with virtual resources that can be accessed and used at

any time, thus realizing learning at anytime and anywhere. In recent years, people's understanding of e-books mainly has three kinds: first, they regard e-books as the space of network mutual learning, realize resource sharing, and exchange between scholars and teachers, between teachers and students, and between students (Ronowicz et al., 2015). Second, the e-book is considered to be a treasury of knowledge due to the excellent storage function and portability.

Eventually, e-books has the ability of displaying the textbooks' contents through different aspects. E-books can facilitate students' understanding and mastery of the knowledge on textbooks. Students' learning interest and efficiency can be promoted through the notes and annotations on the e-book, which is also reflected in each link of teaching process. The existence of e-books and e-textbooks becomes an individual environment for teachers and students to conduct learning activities or share resources with others. In this way, the teaching tasks assigned by the school can be well completed by teachers and educational resources can be well adopted by students (Chau et al., 2021).

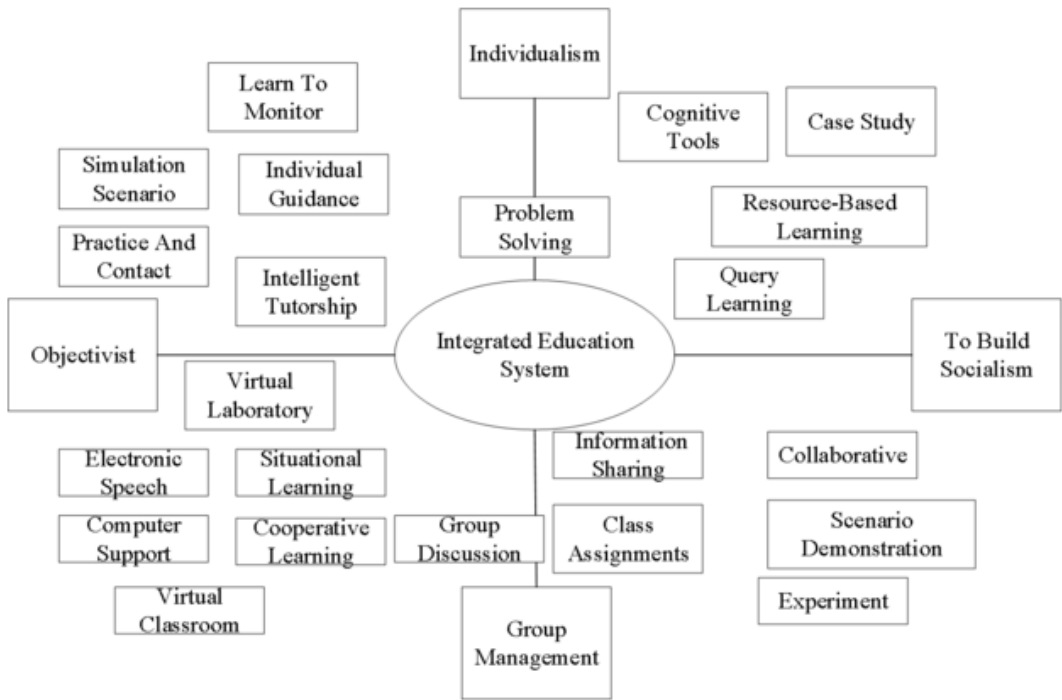
Meanwhile, massive scholars in the world put forward that e-books are quite crucial for the colleges' teaching activities. Hence, related e-book resources in college libraries need to be enriched, which is conducive to the teachers and students' access and sharing of abundant resource. Besides, it is also beneficial for the improvement of service quality in college libraries. Furthermore, some scholars proposed that when people buy e-books in libraries, the management of e-books should be analyzed and the difference between the traditional management of books should be found, so that the utilization rate of e-books can be increased. It suggests that introducing e-books into the classroom is good for the students' learning, resource expansion in college libraries, reading convenience of teachers and students, and improvement of the service quality in college libraries. Besides, it will lead to the decrease of paper utilization and achieve paperless learning, so that the resource consumption can be reduced and environmental pollution can be alleviated.

When teachers adopt e-books or e-textbooks in teaching, the teaching content is combined and adjusted based on the teaching goals. In this way, a more appropriate teaching structure can be achieved. Next, e-books or e-textbooks can be employed for arranging learning tasks, thus leading to the more flexible and timelier content. In the process of examination, it is essential to produce and upload the examination question on the Internet. Besides, it is also necessary to conduct the question correction online, so as to improve the working efficiency. Furthermore, it is beneficial for teachers to recall the knowledge learned and enrich the current reading content. In this way, students will have comprehensive access to more typical cases, which further helps students understand the content (You and Dörnyei, 2016). The e-book used in this paper not only covers e-book textbooks, but also makes students directly refer to relevant materials and also seek the help of teachers online. It is an effective tool to integrate learning resources, which can be used only by personal ID identification. Moreover, they can help students organize knowledge points and build their own knowledge framework by using the functions of e-textbooks and e-book markers, notes and annotations, which is also a new teaching model. Whatever the new teaching model is, all the teaching models focus around the teaching objectives, professional training purposes, conditions, and final evaluation. Therefore, a new teaching model is acquired, and its framework is shown in Figure 1.

Learning Motivation and Effectiveness of Law Major

Learning motivation indicates the motivation tendency that can arouse and keep students' learning behavior and point it to a certain goal including learning needs and expectations, with massive kinds of classifications. It is generally classified as internal and external motivation on the basis of the different sources. Internal motivation indicates that students are interested in learning and want to obtain more knowledge. External motivation donates that learners do not take acquiring more knowledge as the learning goal; they hold that some rewards or punishments should be obtained after some learning results are achieved. Students' learning requires all the motivations mentioned above, while the internal motivation takes a more important position because it can give students continuous motivations for learning. Learning motivation can also be categorized into noble motivation and low-

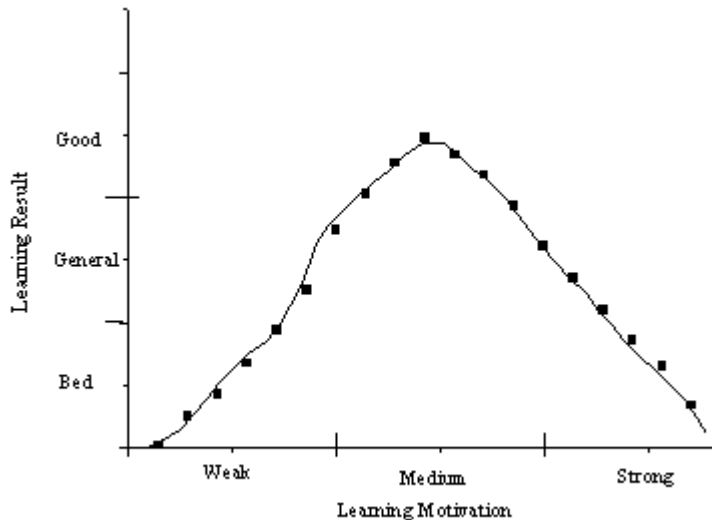
Figure 1. Framework of the new teaching model



level motivation based on the social contribution. Some learners are aware of their learning goals of realizing the life value and making contributions to the country's development. When this kind of learning is linked with the future development of the country, it is regarded as a noble motivation (Wang and Wang, 2013; Li and Chen, 2013). However, some people think that they want to study well for their own sake and improve their social status, and this motivation is considered to be low-level motivation. But in fact, there is no difference in learning motivation. Only when our own needs are met first can we further consider the social value. Certainly, with the motivation from family education during childhood, some students are interested in other contents by learning one aspect of the content. Others do so because learning can bring certain results and make them more in line with their beliefs. Whatever motivation is based on, it can effectively promote the process of learning, and then generate new motivations (Pang et al., 2013).

The major of Law at colleges is to train high-level applied talents engaged in legal work. Through a systematic study of legal knowledge, they are familiar with the laws of the country and the relevant policies of the Party and can analyze and deal with legal problems in reality. Finally, they can engage in legal work in state organs, enterprises, units, and social organizations. Because the law major has more laws and regulations and policies, it is dull and boring to learn, and law major requires better practical ability (Kanniga et al., 2020). It requires teachers to constantly stimulate students' learning motivation, and adopt more information and personalized teaching so that students have more space to think, analyze and feedback, and ultimately turn legal theories into their own tools to solve problems pertinently. In law learning, typical cases are the best application of the corresponding provisions, but because things change more, massive problems need to be handled with the assistance of law. A few typical cases are not enough. Students should realize more information about the situation and make a summary of the possible solutions. Thereby, the related cases need to be realized to produce a sense of fatigue more easily, which will influence the learning results. Hence, students' learning

Figure 2. The relationship between learning effectiveness and motivation



motivation should be stimulated continuously, so as to realize the teaching objectives, and increase the teaching effectiveness (Wang et al., 2017).

Learning motivation has a close relationship with learning effectiveness. In massive cases, the stronger motivation of academic achievement indicates the more persistent learning, and in consequence, there is more effective learning. Thereby, the learning effectiveness reveals the rationality of present teaching method and its stimulation effect on learning motivation. Figure 2 presents the relationship between learning effectiveness and learning motivation.

Therefore, considering that very less or no work has been reported on using big data analysis to help students better apply knowledge in the field of education, this paper introduces big data analysis into teaching, starting with learning motivation and achievements.

METHODS

Big data analysis is primarily to analyze a large number of data, which generally have four characteristics: large quantity, fast speed, many types, and certain value. Figure 3 displays the steps of using big data for analysis:

During big data analysis, data mining aims to convert data into an understandable structure. Clustering analysis and anomaly detection reveal the relationship among data and extract hidden information for users to choose and make decisions. Generally, it involves data collection and preprocessing, mining knowledge and information, result evaluation and analysis, and application stage. Figure 4 displays the related contents:

Data mining algorithm satisfies the needs of mining tasks and makes knowledge meet users' needs. Since the related computer technology develops rapidly, it has been well combined with massive disciplines, leading to massive mining technology. Regarding teaching, hierarchical methods of analysis and weight-related, decision tree and association method can be adopted to evaluate the relationship between teachers and teaching effectiveness.

Figure 3. Steps of big data analysis

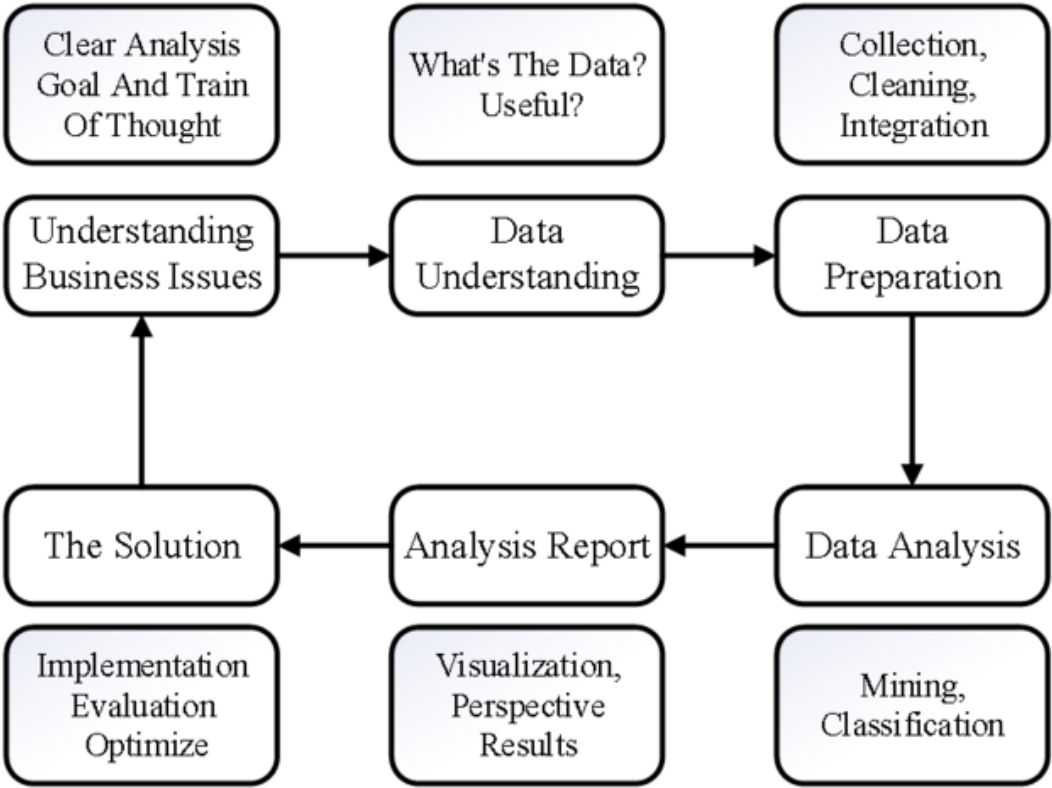
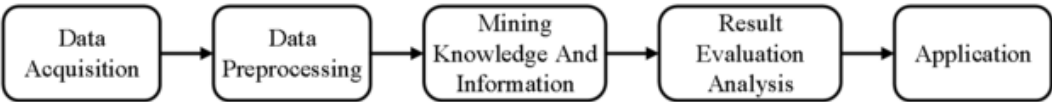


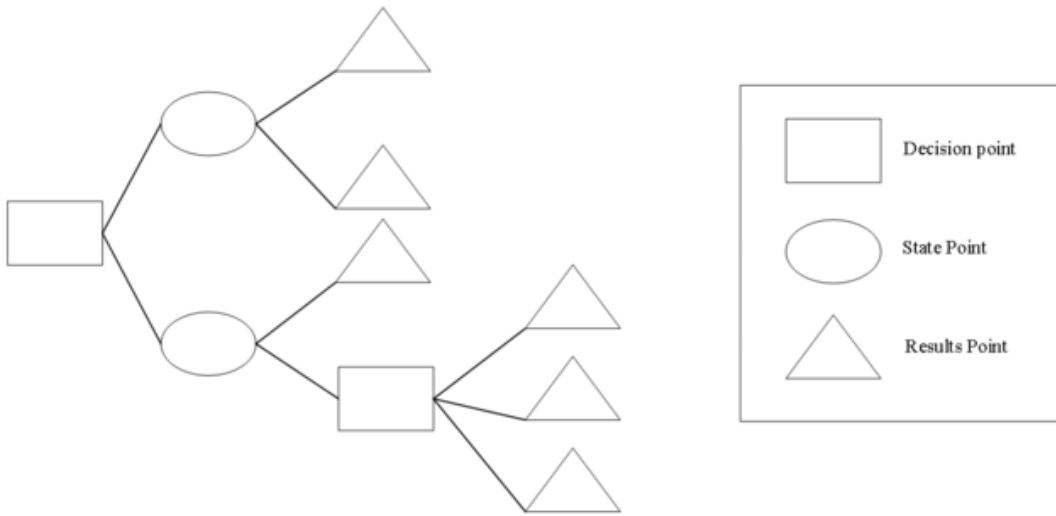
Figure 4. Contents of data mining



The motivation and effectiveness of e-book teaching for law majors are primarily explored. Next, the decision tree and correlation method are adopted for analysis. The decision tree is a series of tree graphs employed to express people’s judgments for decision-making by building a decision tree. It aims to seek the probability that the expected value of net present value is higher than zero on the basis of the probability of various situations occurred. The decision tree model has been shown in Figure 5.

Decision tree model is to apply a tree structure to classify data based on their characteristics. Essentially, it induces a group of classification rules from the training dataset and classifies the data based on different splitting rules when splitting the nodes of each tree. Leaf nodes is the category of the corresponding samples, and each path from the root node of the decision tree to the leaf node constitutes a rule: the characteristics of the internal nodes on the path corresponding to the condition of the rule, while the classes of leaf nodes correspond to the conclusion of the rule. A crucial property of decision tree paths: mutually exclusive and complete (Baskaran & Eswari, 2021). It means that

Figure 5. Decision tree model



each instance is covered by a path or a rule. The so-called coverage indicates that the features of an instance are in line with those of the path or that the instance satisfies the conditions of the rules.

Association is to evaluate the relationship among various teaching methods, learning motivation and learning effectiveness, and to mine the situation of meeting the needs of support, confidence, and promotion from the database. Hence, the part which greatly influence the motivation and effectiveness of e-book teaching can be inferred. It provides related feedback to teachers and schools, assists teachers in modifying teaching schemes in time, and adopts more reasonable methods to make students realize the expected learning results. The support degree indicates the probability of the occurrence of a set of items:

$$\text{support}(X \rightarrow Y) = \frac{P(X, Y)}{P(I)} = \frac{P(X \cup Y)}{P(I)} = \frac{\text{num}(X \cup Y)}{\text{num}(I)} \quad (1)$$

Association rules: With two known item-sets X and Y , association rules are like expressions $X \rightarrow Y$. X donates the precondition of association rules; Y indicates the after-condition of association rules, and $X \cap Y = \emptyset$. Besides, after the founding of a frequent itemset X , the non-empty true subset is taken as Y . If $S = X - Y$, and $\text{confidence}(S \rightarrow Y) \geq \min \text{conf}$, $(S \rightarrow Y)$ is an association rule and $\min \text{conf}$ is a human-made minimum confidence level. Hence, the task of association analysis is to mine frequent item-sets from datasets and then extract strong association rules between things from frequent item-sets to assist decision-making.

In (1), I represents the total set of things; $\text{num}()$ is the quantity of occurrences of a particular set of items in the set of things.

Confidence indicates the probability of deducing Y by correspondence relation of $X \rightarrow Y$ when condition X occurs.

$$\text{Confidence}(X \rightarrow Y) = P(Y/X) = \frac{P(X, Y)}{P(X)} = \frac{P(X \cup Y)}{P(X)} \quad (2)$$

The lifting degree is the ratio of the probability of containing both X and Y and the probability of Y as a whole:

$$\text{Lift}(X \rightarrow Y) = \frac{P(Y/X)}{P(Y)} \quad (3)$$

EXPERIMENTS

Relevant Data Collection

Through the statistics of 5491 valid questionnaires collected from college students, Table 1 can be obtained:

Table 1. Statistics of factors influencing students' learning motivation

Items	Factors	Contents	Influences	Total votes	Proportion
Individual factors	Characteristics of students	Mood, will, experience, hobbies, interests, and health status	When the learning content conforms to the individual interest, it will greatly arouse the need of learning, so the learning motivation will be enhanced. When the learning content is far from the individual hobbies or interests, it is easy to make students feel tired and bored when they study, thus weakening the learning motivation.	1904	34.7%
Social factors	Social life	Social values, industrial development, wage level, and national policies	Correct social values will have a positive impact on learning; a better future development of the industry and a higher corresponding wage level will stimulate students' enthusiasm for learning; national policies for professional or industry support will also be conducive to improving students' enthusiasm.	333	6.1%
School factors	Campus study and life	Campus environment, teaching equipment, curriculum setting, teaching plan, and teachers' quality	Good teaching environment, advanced teaching equipment, personalized teaching ideas and methods, knowledge literacy and personality charm of university teachers.	1927	35.1%
Family factors	Family environment and education	Economic conditions of the family, education level of the parents, family size (objective factors); parents' education method, expectation and family atmosphere (subjective factors)	The subjective factors of family environment greatly influence students' learning motivation, especially the parents' educational expectations and methods.	1327	24.2%

Through the data analysis of their questionnaires, it is found that family environment and education, students' personal needs and goals, the future development of their major and so on are the main factors affecting students' learning motivation. Through big data analysis and prediction, it is found that students' family environment, education, personal needs and goals will continue to affect students' learning and work in the future development. Therefore, in the case where family education cannot be changed, students can also change part of the concept after continuous training, and choose a more favorable way for their future development according to individual needs and goals to stimulate their learning motivation.

Based on analyzing the learning motivation of college students, and considering that the new e-book teaching method with more contents may help to improve students' learning interest, 200 law students in a university were selected for comparative experiment.

In this paper, 200 students majoring in law in a university were selected for a comparative experiment, including 130 males and 70 females. Their motivation to study law is obtained through questionnaires, as shown in Table 2.

Table 2. Motivation of males and females to learn the law

Learning motivation	Males	Females
Own Needs and goals	27	11
Interest	20	16
Family environment	33	5
Public opinion	19	8
Others	31	30
Total	130	70

It can be seen from Table 2 that the factors affecting their learning motivation of these 200 students are basically similar to the results obtained from big data. They all think that the family environment has a greater impact, followed by personal needs and goals. In the process of students' learning and growth, personal needs and goals will gradually occupy the main position. Therefore, the school's teaching methods and teachers' quality will become an important part of their later learning results.

200 freshmen from the same college, grade, and legal direction are selected as the research subjects and categorized into two groups: traditional teaching and e-book teaching, with 65 males and 35 females in each group. Teachers in the traditional teaching group adopts traditional teaching theory, case teaching, situational drilling, homework after class and evaluation in the course of teaching. Teachers in the e-book teaching use preview, students' self-preparation, assistant teaching, situational drilling and evaluation at the end of class, and cultivate students' interest and ability of independent study and inquiry. Two groups learn some law courses simultaneously. After 3 months, the two groups of students are evaluated. Table 3 displays the results. Table 4 presents the use of e-books by the students in the e-book teaching group.

Decision Tree Analysis

Using decision tree to analyze the factors affecting the motivation and effectiveness of law learning not only can enable teachers and universities to think carefully and form scientific decision-making, but also avoid the real factors affecting students' learning motivation and effectiveness due to different courses and mistakes in choosing teaching mode by imagination, and ultimately improve

the effectiveness of decision-making. The decision tree model affecting learning motivation and achievement is shown in Figure 6.

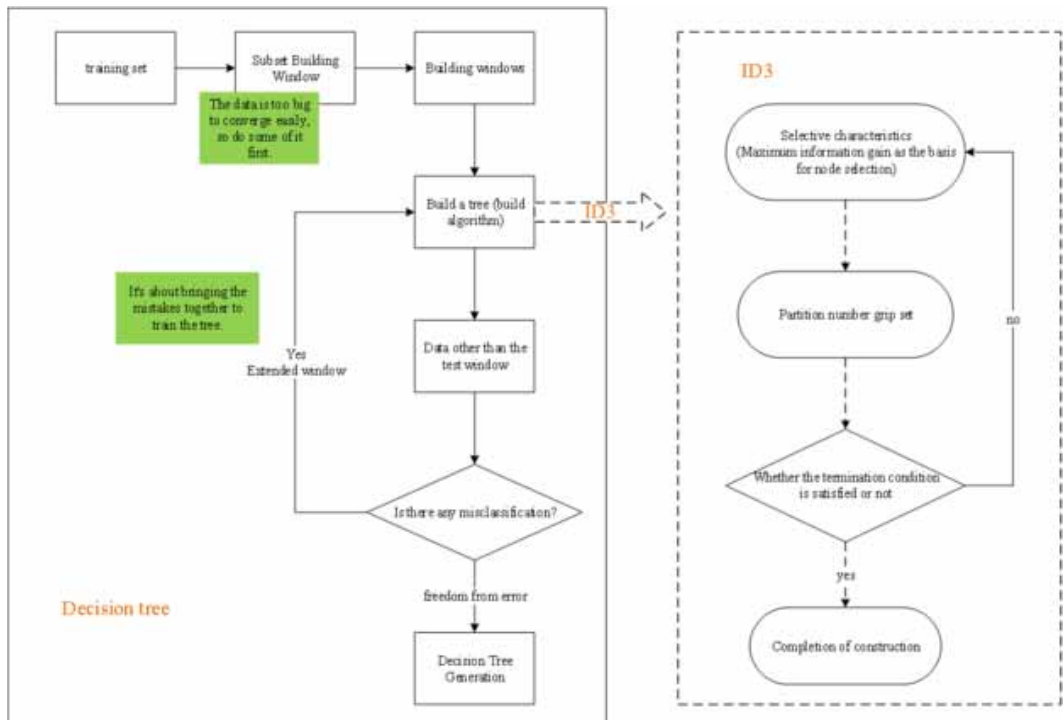
Table 3. Assessment results of two groups of students (full marks: 60)

	Average		Theory score		Practice score		The Standard Deviation	Practice SE Mean
	Theory score	Practice score	Highest	Lowest	Highest	Lowest		
The traditional teaching	45.3	40	49.8	40.8	45	35	3.2328	0.4168
E-book teaching	50.9	49.5	54.5	47.3	54.3	44.7	2.1976	0.4006

Table 4. Average use of e-books by students in e-book teaching group

Theory score	Times of using e-books	Number of search cases	Resource downloads	Practice score
50.9	247	413	298	54.3

Figure 6. Decision tree model affecting learning motivation and effectiveness



Based on the students' test scores, e-books and access data of relevant materials can be used to obtain the generation and classification rules of the decision tree. The intrinsic motivation is from the students themselves, while the extrinsic motivation is from external stimulus.

Thereby, based on the voting and decision tree classification analysis of the factors influencing the learning motivation, the 7 factors in Figure 6 with a larger proportion of influence are obtained.

In the application of decision tree to data analysis, the data of each student in the two groups are taken as a node. X is the set of all students; Y is the set of factors affecting learning motivation and effectiveness. Whether the Y given by X is the same category is determined, and then the classification decision is made. Figure 7 displays the mining process of decision tree.

DISCUSSION

The difference between e-book teaching and traditional teaching methods is shown in Table 5.

Figure 7. Construction of decision tree

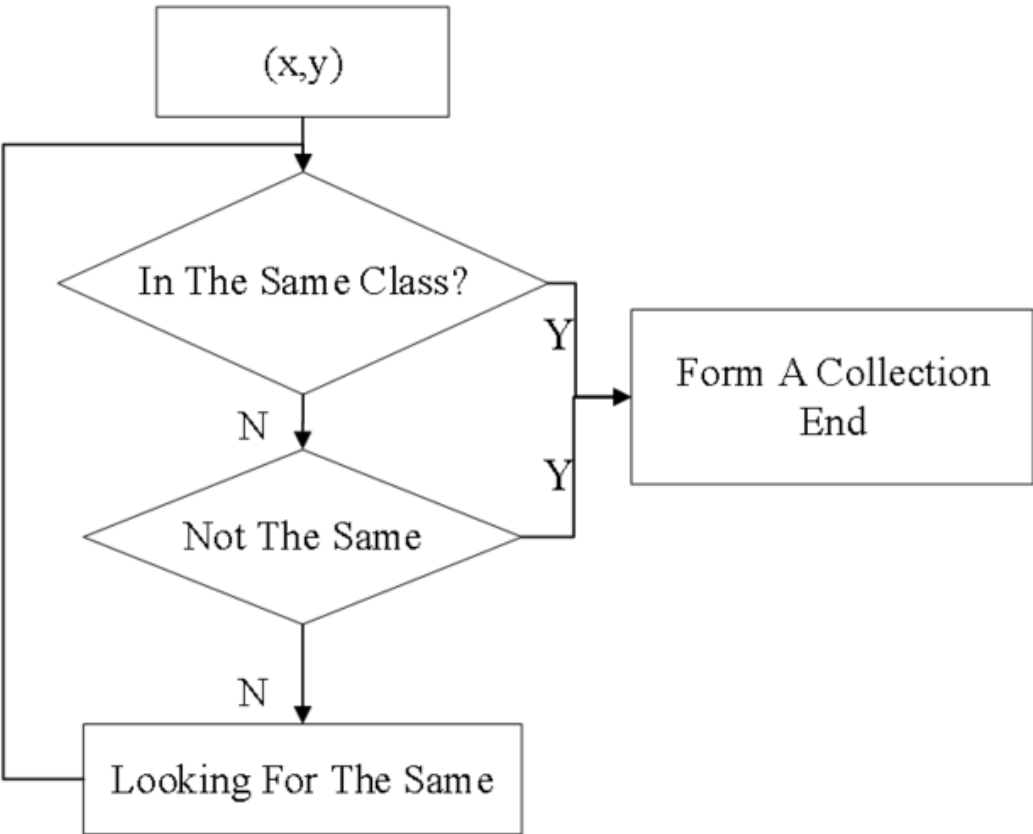
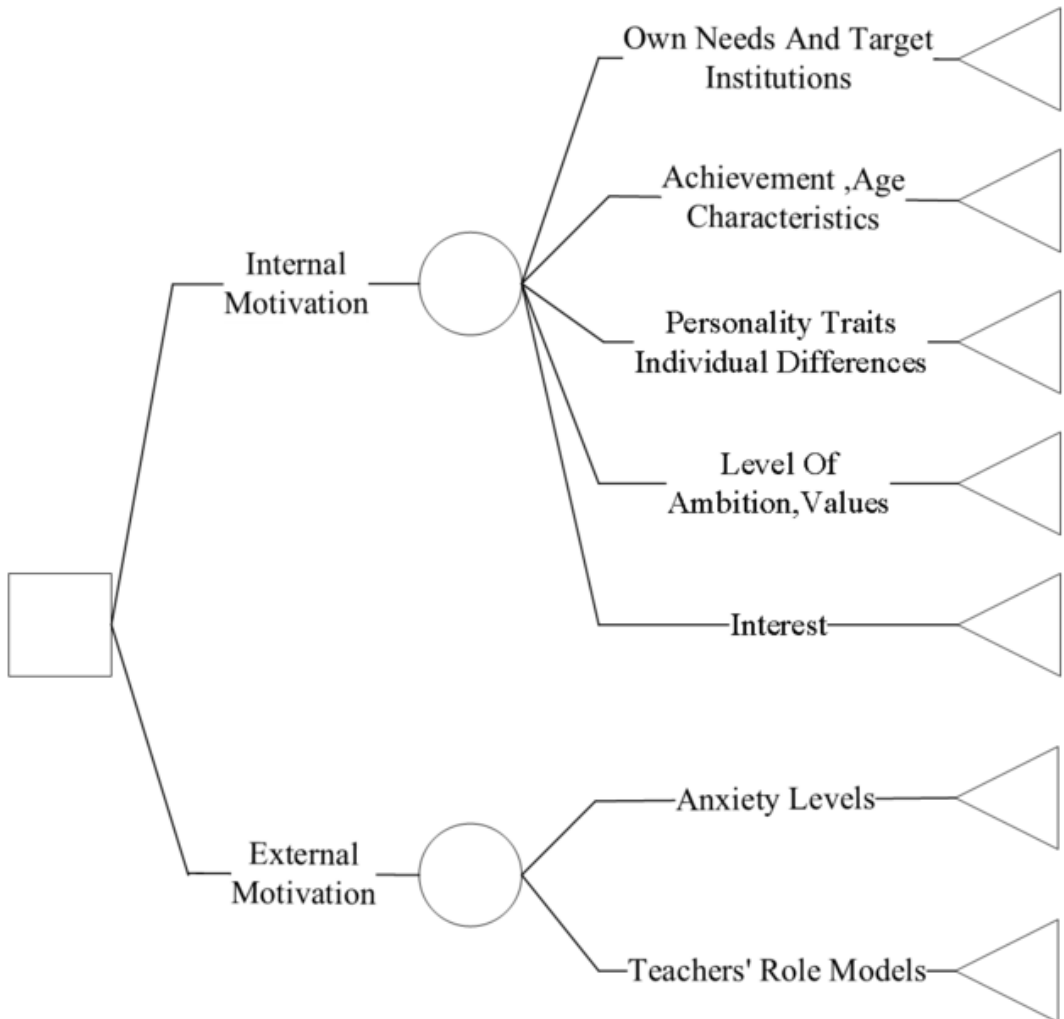


Table 5. Differences between traditional teaching and e-book teaching

Practice Average	Standard deviation	Practice Se mean	A confidence interval	
			Upper Limit	Lower Limit
-9.5	1.0352	0.0162	-1.927	-1.273

Figure 8. Decision analysis tree



After the class, the factors affecting students' motivation of learning law are listed and scored by students. Table 6 is obtained through data collation.

Figure 8 demonstrates that among the factors affecting learning motivation and effectiveness, Own needs and target institutions, Achievement and age characteristics, Personality traits and individual differences, Level of ambition and values, and Interest are classified as intrinsic motivations. By contrast, Anxiety levels and Teachers' role models are classified as external motivations. Hence, guidance from internal motivations can stimulate students' learning motivation from multiple perspectives. Working on students' anxiety levels and teachers' role models can help students improve their academic performances from the external environment and promote the reform of teaching models.

Through the final evaluation results of Table 3, it can be seen that after three months of study, the theoretical and practical results of the group using e-book teaching are higher than those of the group using traditional teaching methods. Therefore, it can be considered that the use of e-book teaching has a certain impact on the improvement of academic performance and enables students to write after the end of the course through the three months of learning. Authors believe that e-book

Table 6. Factors and weights affecting learning motivation

<i>Factors</i>	<i>Weight</i>	<i>Cumulative</i>
Own needs and target institutions	0.20	0.20
Achievement and age characteristics	0.16	0.36
Personality traits and individual differences	0.15	0.51
Level of ambition and values	0.11	0.62
Anxiety levels	0.08	0.7
Interest	0.25	0.95
Teachers' role models	0.05	1.00

teaching mainly stimulates the factors in their learning motivation. In this way, better results can be achieved by them at last. The data in Table 6 reveal that among the factors affecting the motivation and effectiveness of legal learning, the interest factor is the highest at 25%. It suggests that e-book teaching can attract students' interest in the course and stimulate students' learning motivation. With other factors, the students' theoretical and practical achievements will be better than those of the traditional teaching model.

Furthermore, the study of the relevance of teaching model, learning motivation and learning effectiveness suggests that the promotion degree of Lift (X@Y) of the three is higher than 1, suggesting a strong correlation among the three.

Overall, using teaching model that can attract students can stimulate students' learning motivation and reflect the effectiveness of this teaching model in the final evaluation. After big data technology is used to analyze the factors that affect students' learning motivation, it is found that students' internal factors play a major role in students' learning. As a result, colleges and teachers can master more information, assist in adopting different new teaching models in the subsequent teaching process, stimulate students' learning motivation and achieve good results, and help to achieve professional training objectives, and truly achieve vocational education.

CONCLUSIONS

The continuous development of information technology and the continuous innovation of digital products have been reflected in all walks of life, leading to constant changes of people's lifestyles. Only the education industry has been forgotten. However, with the continuous advancement of teaching reform, new teaching methods are gradually coming into the sight of colleges. They hope to stimulate students' learning motivation through more digital teaching. In this way, students will be interested in learning instead of just learning theories which they feel boring. Hence, massive colleges have gradually introduced e-book teaching and added E-book resources to college library services. These e-books are not only e-book textbooks, but can be logged in with students' ID accounts to obtain more resources related to content and interact with teachers and answer questions. It is hoped to achieve the use of information and digital teaching model to attract students' attention, so that they have enough internal driving force to learn more boring knowledge, even legal provisions, and finally achieve the training objectives of law students in colleges and universities. For students majoring in law, digital teaching, for example, the e-book can stimulate students' interest in learning, which is conducive to students' deeper understanding of the provisions in the process of scenario simulation, and ultimately improve their theoretical application ability and professional quality. In the information age, colleges and universities can accumulate more and more data to form a "big data" system. In college teaching, teaching achievement has become the standard of evaluating teaching quality. Therefore, the decision

tree algorithm in big data analysis is used to study the influence of e-book teaching method on the motivation and effectiveness of law major, and to find out the factors of interest that have great influence on motivation and effectiveness, which has certain referential significance for stimulating the motivation of some theoretical disciplines in colleges and universities. It also provides a train of thought for the focus of teaching mode after colleges and universities. At the same time, it has made a certain contribution to the introduction of more electronic resources into university libraries, to the provision of better resource services for teachers and students, to the realization of paperless learning for teachers and students, and to the acquisition of more knowledge.

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