Analysis of Factors Influencing the Use of Chinese Online Education Platform: A DEMATEL-ISM Based Approach

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Abstract. Under the background of macro environment, on the basis of PEST analysis framework, the paper summaries 11 factors which influence the application of users of Chinese online education platform. Through DEMATEL-ISM methods, this study combs the logical relationship between factors, draws the causal relationship diagram, and sorts the influencing factors into structural levels. The result indicates that the influencing factors of Chinese online education platform can form a multi-level hierarchical structure model of three-level and six-layer, in which users' needs and values are the direct influencing factors, and legal supervision and change of policy are the fundamental factors. The two methods have a high degree of consistency in the centrality of conclusion, reason analysis and level division which proves the scientificity and rationalization of the construction of DEMATEL-ISM model. The paper then proposes countermeasures and suggestions to promote the sustainable and healthy development of online education platforms from the perspective of the government and platforms.

Keywords: Online Education Platform · User Use · PEST Analysis · DEMATEL-ISM

1 Introduction

With the rapid development of Internet technology, Chinese online education has experienced a rapid growth. According to 2021 CNNIC report, the number of online education users has reached 325 million. On the one hand, the rise of online education brings convenience to people across time and space and access to high-quality educational resources; on the other hand, investments continue to enter the field making competition fierce and giving more pressure to the students and their family. On July 24, 2021, the General Office of the Central Committee of the Communist Party of China and the General Office of the State Council issued the "Opinions on Further Reducing the Burden of Compulsory Education Students' Homework and Off-campus Training" (hereinafter referred to as the "Double Reduction" policy). Based on the current industry environment for platform development, it is of great significance to clarify the factors affecting the use of online education platform users from a macro perspective, and to divide the

structural levels of their complex systems, so as to give countermeasures and suggestions to the government and platforms.

This article uses the PEST analysis to analyze the current environment of Chinese online education platform from a macro perspective, and uses the DEMATEL-ISM method to sort out the factors affecting the use of online education platform from the perspective of consumers, clarifies the internal connections and hierarchical relationships between the factors, and gives relevant countermeasures.

2 Extraction of Factors Affecting Online Education Platform User Usage

2.1 Political Environment

Political environment is quite important for any industry by showing the attitude of government and therefore decides the resources flow for the company. In the year 2017, the government issued the "Thirteenth Five-Year Plan for the Development of National Education", which provides the policy guidance of "Internet + Education" for the development of education. Zhang et al. believe that the government actively promotes the reform of education mode and encourages local education innovation, which is conducive to the efficient use of educational resources [16]. Wang et al. believe that online education platforms are developing rapidly, but there are chaos, which is rooted in the lack of supervision [12]. At the same time, in order to curb the capitalization of online education and reduce the burden of students' homework, on July 24, 2021, the General Office of the Central Committee of the Communist Party of China and the General Office of the State Council issued the "Opinions on Further Reducing the Burden of Students' Homework and Off-campus Training in Compulsory Education". The issuance of the "Double Reduction" policy has a huge impact on the education and training industry, causing many online education companies to shrink their circles.

2.2 Economic Environment

Economic environment is the fundamental factor for both the platform and the customers. According to statistics from iResearch, the market size of China's online education industry has expanded from 78.7 billion yuan in 2016 to 257.3 billion yuan in 2020. The popularization of online education has promoted the optimal allocation of resources and the improvement of utilization. Kabra Bhavna et al. believe that online education can break through the limitations of time and space and realize the sharing of educational resources [5]. Since 2013, Internet giants led by BAT have begun to invest abroad and have entered the online education industry. In February 2014, Alibaba took the lead in investing in Itutor Group. In August of the same year, Tencent and Baidu successively established Beijing Weixue Mingri Network Technology Co., Ltd. and acquired Chuanke.com [13]. As Internet giants intervene in the field of online education and hope to use capital to make up for shortcomings in the field, the online education industry is increasingly capitalizing on online education. With the rapid economic and social development, household disposable income has generally increased, and people's

expenditure on education consumption has gradually increased. Zhang et al. believe that with the rapid development of my country's economy, more and more families pay more attention to investment in children's education [16].

2.3   Social Environment

Social environment influence people quite deeply by believes and acts. Chinese are paying much attention to the education of their children ever since. And as the COVID-19 comes, online education has developed rapidly in the context of epidemic prevention and control. Chakraborty Pinaki et al. believe that under the influence of the new crown epidemic, the online education industry has developed rapidly on university campuses [3]. Cen et al. made a micro-review on how online education can make up for the gap in classroom education during the COVID-19 pandemic [2]. The upsurge of online education has brought people's emphasis on education and changes in their values. Li et al. found that online education in the context of COVID-19 aroused the enthusiasm of postgraduates with rich forms and contents [6]. In the ever-changing development of online education, there are also many problems. Sun et al. discussed that in the "Internet+" ecosystem, online education platforms have serious copyright infringement problems, and people's awareness of property rights protection needs to be improved [10].

2.4   Technological Environment

Technological environment is the basic foundation and implementation force for the education platform. In recent years, the development of the Internet technology field has promoted the transformation of the online education industry [1]. The advancement of digital technology has injected new vitality into the online education industry. Zhang et al. proposed that various paradigms in the field of online education under the background of big data continue to emerge and have achieved very good results [15]. Peng et al. believe that to make full use of the current network technology, network education as a new education method is gradually recognized by the society [7]. Jia et al. proposed that with the popularization of 5G and cloud computing technology, online education has ushered in another wave of development [4].

2.5   Extraction of Influencing Factors

After extracting the main influencing factors of macro-environment on online education platform by PEST analysis, three dimensions of each aspect are analyzed by interviews with relevant experts and industry insiders. A total of 11 influencing factors are screened out. Combining the semantic connotation of each factor and analyzing the four dimensions of PEST, a system diagram of the factors affecting the use of online education platform users is constructed, as shown in Fig. 1.
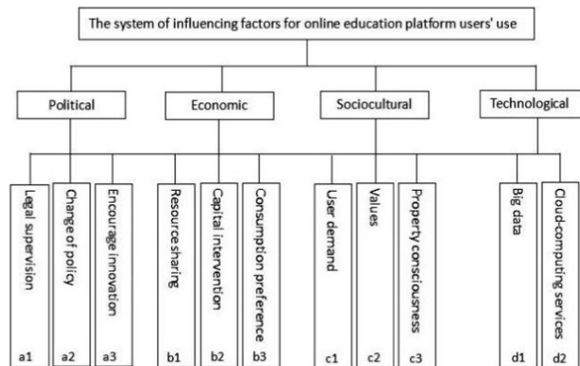
Fig. 1. The system diagram of the influencing factors of online education platform users' use

3 The Construction and Implementation of the DEMATEL-ISM Model of the Factors Affecting User Use

3.1 Model Introduction

The DEMATEL (Decision Making Trial and Evaluation Laboratory) method is a modeling method used to analyze the relationship between various factors in a complex system [9]. The ISM (Interpretive Structural Modeling) model is used to explore the internal relationship between various influencing factors, and explore its internal mechanism by dividing the hierarchical structure of each factor [8]. Both the DEMATEL method and the ISM model are based on a complex system to analyze the causal relationship between various influencing factors, and the combination of the two can further analyze the key influencing mechanism among the determined factors [11]. The online education platform based on the macro-environment analysis has a complicated relationship between the influencing factors used by users, so the DEMATEL-ISM method is used to matrix the influencing relationship, and it is easier to analyze the relationship between the influencing factors through matrix calculation.

3.2 Model Implementation Steps

The implementation steps for DEMATEL-ISM method to analyze the relationship between influencing factors are shown in Fig. 2.

1) Determine the factors affecting the use of online education platform users. Based on PEST analysis, the influencing factors are divided into four categories: Political environment (Legal supervision (a1), Change of policy (a2), Encourage innovation (a3)), Economic environment (Resource sharing (b1), Capital intervention (b2), Consumption preference (B3)), Social environment (User demand (c1), Values (c2), Property consciousness (c3)), Technological environment (Big data (d1), Cloud-computing services (d2)).
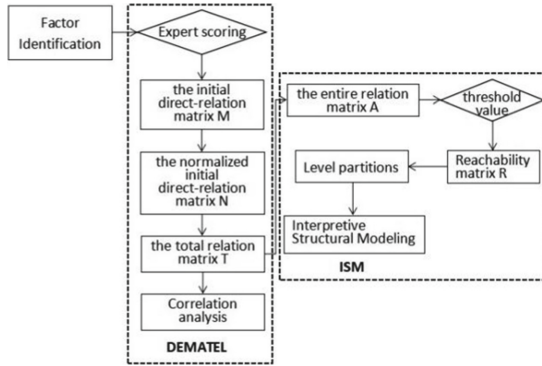
Fig. 2. Implementation steps based on DEMATEL-ISM analysis of online education platform users' influence factors

2) Obtain the direct influencing matrix M. This study invited 10 experts and scholars in the field of education, senior practitioners of online education, and long-term users of online education platforms as the subjects of Delphi method scoring, through the 0–4 scoring mechanism, that is, 0, 1, 2, 3, and 4 correspond to each other. No impact, low impact, general impact, high impact, extremely high impact, the direct impact matrix is finally determined by the Delphi method.

3) Normalization of the affection matrix. Eliminate the difference caused by different dimensions, and standardize the matrix M. The most important thing for normalization is to use a maximum value as the standard. This article selects the row and the maximum value for normalization [14], and the normalization formula is shown in formula (1).

$$N = \frac{M}{\max\limits_{1 \leq i \leq 11} \sum_{j}^{11} m_{ij}} \tag{1}$$

4) Calculate the comprehensive influence matrix T. The comprehensive influence matrix is to further clarify the degree of influence of various factors on other factors in influencing factor system. The comprehensive influence matrix T is calculated in formula (2).

$$T = N + N^2 + N^3 + \cdots + N^n = N\frac{I - N^{n-1}}{I - N} \tag{2}$$

Because after normalization processing, $0 \leq n_{ij} \leq 1$, therefore, when n tends to positive infinity, N^{n-1} tends to 0, so Eq. (3) can be approximated to replace Eq. (2). The comprehensive influence matrix is calculated by formula (2), as shown in Fig. 3.

$$T = N(I - N)^{-1} \tag{3}$$

5) Calculate the influence degree f_i, the influenced degree e_i, the degree of centrality M_i, and the degree of cause N_i according to the comprehensive influence matrix T.

T	a1	a2	a3	b1	b2	b3	c1	c2	c3	d1	d2
a1	0.03	0.28	0.12	0.15	0.40	0.32	0.40	0.20	0.34	0.34	0.08
a2	0.02	0.06	0.16	0.28	0.33	0.32	0.42	0.21	0.31	0.39	0.12
a3	0	0.09	0.13	0.06	0.03	0.37	0.53	0.30	0.04	0.23	0.20
b1	0.02	0.14	0.28	0.15	0.05	0.26	0.55	0.23	0.30	0.42	0.34
b2	0	0	0.13	0	0	0.23	0.40	0.15	0	0	0
b3	0	0	0.03	0	0	0	0.31	0.31	0	0.01	0
c1	0	0	0.02	0	0	0	0.07	0.25	0	0	0
c2	0	0	0.09	0	0	0.03	0.29	0.08	0	0.02	0.01
c3	0.09	0.14	0.14	0.32	0.07	0.17	0.29	0.20	0.13	0.32	0.12
d1	0.03	0.04	0.32	0.11	0.01	0.37	0.52	0.23	0.03	0.10	0.16
d2	0.03	0.04	0.32	0.11	0.01	0.37	0.52	0.23	0.03	0.17	0.09

Fig. 3. Comprehensive influence matrix T

The degree of influence f_i represents the degree of comprehensive influence of the factor T_i in the comprehensive influence matrix on all non-self factors; the degree of influence e_i represents the degree of comprehensive influence of the factor T_i in the comprehensive influence matrix by all non-self factors, see formulas (4) and (5).

$$f_i = \sum_{j=1}^{11} t_{ij}, (i = 1, 2, \ldots, 11) \tag{4}$$

$$e_i = \sum_{j=1}^{11} t_{ji}, (i = 1, 2, \ldots, 11) \tag{5}$$

The centrality M_i represents the degree of influence of the factor T_i in the comprehensive influence matrix, that is, the degree of importance; the cause degree N_i emphasizes the attribute of the factor. If the cause degree is greater than 0, it indicates that the factor has a large impact on other factors, which is called the cause factor, and vice versa. As the result element. The calculation of centrality M_i and cause degree N_i is shown in formulas (6) and (7).

$$n_i = f_i - e_i, (i = 1, 2, \ldots, 11) \tag{6}$$

$$m_i = f_i + e_i, (i = 1, 2, \ldots, 11) \tag{7}$$

6) Calculate the overall influence matrix A. Since each factor also has an impact on itself, the overall influence matrix A is introduced to supplement the influence of factors on itself. The calculation of the overall influence matrix A is shown in formula (8).

$$A = T + I \tag{8}$$

$I = E_{11*11}$, where E is the identity matrix.
7) Calculate the reachable matrix R. The establishment of the reachability matrix requires the removal of non-core elements and the introduction of the threshold λ. The determination of λ will affect the judgment of the factors in the reachability

Table 1. Reachability matrix R

R	a1	a2	a3	b1	b2	b3	c1	c2	c3	d1	d2
a1	1	0	0	0	1	1	1	0	1	1	0
a2	0	1	0	0	1	1	1	0	1	1	0
a3	0	0	1	0	0	1	1	1	0	0	0
b1	0	0	0	1	0	0	1	0	1	1	1
b2	0	0	0	0	1	0	1	0	0	0	0
b3	0	0	0	0	0	1	1	1	0	0	0
c1	0	0	0	0	0	0	1	0	0	0	0
c2	0	0	1	0	0	0	0	1	0	0	0
c3	0	0	0	1	0	1	0	0	1	1	0
d1	0	0	1	0	0	1	1	0	0	1	0
d2	0	0	1	0	0	1	1	0	0	0	1

matrix and the construction of the structural hierarchy during the implementation of the ISM model. The determination of λ needs to refer to the mean α and standard deviation β of all elements in the comprehensive influence matrix T, and $\lambda = \alpha + \beta$ as the basis for setting the threshold, as shown in formula (9). Distinguish the factors of the overall influence matrix A, see formulas (10) and (11) for the specific discriminants, and construct the reachable matrix table, see Table 1.

$$\alpha = 0.15, \beta = 0.15, \lambda = \alpha + \beta = 0.30 \tag{9}$$

$$A_{ij} = 1, \lambda \geq 0.30 (i, j = 1, 2, \ldots, 11) \tag{10}$$

$$A_{ij} = 0, \lambda < 0.30 (i, j = 1, 2, \ldots, 11) \tag{11}$$

8) Perform inter-level decomposition of the reachable matrix. Inter-level decomposition involves reachable set, antecedent set and intersection. The reachable set L_i represents the set of elements corresponding to the value of 1 in the i-th row of the reachable matrix R; the antecedent set F_i represents the set of elements corresponding to the value of the i-th column in the reachable matrix R; the highest level element is L_i Intersect with F_i. The principle of inter-level decomposition is: if $L_i = (L_i \cap F_i)$, select the influential factor R_i in the reachable matrix R as the highest-level element, remove the stratified elements and re-judgment, repeat until all influencing factors are divided, Fig. 4. It is the first-level inter-level decomposition table of influencing factors.

Influencing Factors	Reachable Set (L_i)	Antecedent Set (F_i)	Intersection (L_i∩F_i)
a1	a1,b2,b3,c1,c3,d1	a1	a1
a2	a2,b2,b3,c1,c3,d1	a2	a2
a3	a3,b3,c1,c2	a3,d1,d2	a3
b1	b1,c1,c3,d1,d2	b1,c3	b1,c3
b2	b2,c1	a1,a2,b2	b2
b3	b3,c1,c2	a1,a2,a3,b3,c3,d1, d2	b3
c1	c1	a1,a2,a3,b1,b2,b3, c1,d1,d2	c1
c2	c2	a3,b3,c2	c2
c3	b1,b3,c3,d1	a1,a2,b1,c3	b1,c3
d1	a3,b3,c1,d1	a1,a2,b1,c3,d1	d1
d2	a3,b3,c1,d2	b1,d2	d2

Fig. 4. Inter-level decomposition table of the first-level influencing factors

Fig. 5. Hierarchical structure diagram of influencing factors for online education platform users

9) Draw a multi-level hierarchical model. According to the order of influencing factors of online education platform users, the hierarchical structure model of factors is constructed, as shown in Fig. 5.

4 Result Analysis and Discussion

4.1 DEMETL Method: Centrality and Causality Analysis

The centrality indicates the degree to which the element affects all other elements. The greater the centrality of the element, the greater the impact the element has on the use of online education platform users. As can be seen in Fig. 6, the top three factors that influence usage of online education platform in the order of centrality are User demand (c1),

	Influence degree	Influenced degree	Centre degree	Cause degree	Centre degree order	Factor Attribute
a1	2.66	0.22	2.88	2.44	10	Causal factor
a2	2.62	0.79	3.41	1.83	5	Causal factor
a3	1.98	1.74	3.74	0.24	4	Causal factor
b1	2.74	1.18	3.92	1.56	2	Causal factor
b2	0.91	0.90	1.81	0.01	11	Causal factor
b3	0.66	2.44	3.10	-1.78	7	Result factor
c1	0.34	4.30	4.64	-3.96	1	Result factor
c2	0.52	2.39	2.91	-1.87	9	Result factor
c3	1.99	1.18	3.17	0.81	6	Causal factor
d1	1.92	2.00	3.92	-0.08	2	Result factor
d2	1.92	1.12	3.04	0.80	8	Causal factor

Fig. 6. Centrality and Reasoning Ranking Figure

Resource sharing (b1) and Big data (d1). The centrality is 4.64, 3.92, and 3.92, respectively, indicating that the greater the user's demand for online education platforms, the more they can promote the use of online education platforms; the realization of resource sharing also greatly enhances users' willingness to use online education platforms; at the same time, the development of big data is a typical representative technological progress also significantly affects user behavior.

The cause degree divides the attribute of factors into causal factors and result factors. Factors with a causal degree greater than 0 are called causal factors, and factors with a causal degree less than 0 are called result factors. As shown in Fig. 6, the top three factors that influence usage of online education platform in the order of cause are Legal supervision (a1), Change of policy (a2), Resource sharing (b1), and the ratio of cause is 2.44, 1.83, 1.56. These factors are the active factors that promote the use of online education platform users, indicating that the implementation of Legal supervision (a1) and Change of policy (a2) largely affect the implementation and development of other influencing factors; at the same time, Resource sharing (b1) is also an important reason affecting other factors. There are 4 result factors in the system, namely User demand (c1), Values (c2), Consumption preference (b3) and Big data (d1). The corresponding cause degrees are $-3.91, -1.87, -1.78, -0.08$. Among them, User demand (c1) is more significant as the result factor. Analyzing the reasons, it is found that User demand (c1) is highly affected compared to other factors, indicating that User demand (c1) is extremely susceptible to other factors.

In order to show the distribution of centrality and causality more clearly, the causality diagram of influencing factors is drawn. Taking centrality as the measurement value of the abscissa axis and the cause degree as the measurement value of the ordinate axis, establish a Cartesian Cartesian coordinate system of centrality-cause degree, as shown in Fig. 7.
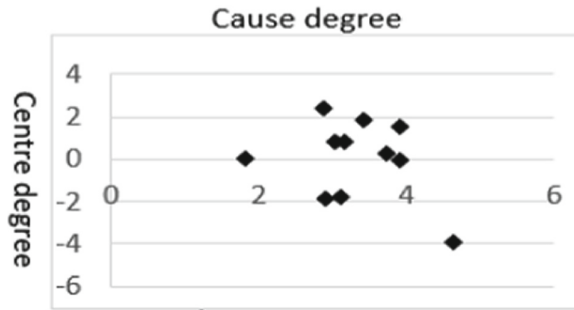
Fig. 7. Centrality-Cause Degree Cartesian Cartesian Coordinate System

4.2 ISM Model: Analysis of Hierarchical Structure

According to the multi-level hierarchical structure model of online education platform users' use influence factors (Fig. 8):

1) Divide all influencing factors into three levels and six layers, of which Legal supervision (a1) and Change of policy (a2) are fundamental influencing factors, which play a fundamental role in the use of online education platform users; the second to sixth layers are indirect influencing factors, including Capital intervention (b2), Consumption preference (b3), Encourage innovation (a3), Cloud-computing services (d2), Big data (d1), Resource sharing (b1) and Property consciousness (c3); User demand (c1) and Values (c2) are direct influencing factors, which have a direct effect on users' use.

2) Legal supervision (a1) and Change of policy (a2) are classified as fundamental influencing factors. They are the basic factors that affect the use of online education platform users. They play a key role in the entire system and have root effects. Legal supervision (a1) and Change of policy (a2) are the primary considerations when dealing with the use of online education platform users.

3) User demand (c1) and Values (c2) are divided into direct influencing factors, which are the most direct factors that affect the use of online education platform users, and are also the ultimate influential target in the entire system. The solution of User demand (c1) and Values (c2) needs to be grasped by adjusting the fundamental influencing factors and indirect influencing factors.

4) Other factors are distributed in the second to sixth layers, and are classified as indirect influencing factors. They have hierarchical and influencing conduction effects, and can be transmitted to direct influencing factors through fundamental influencing factors. There are two main transmission paths in the middle layer: first, Capital intervention (b2) is restricted by Legal supervision (a1) and Change of policy (a2), which affects User demand (c1); the second is that Consumption preference (b3) are affected by other factors that Encourage innovation (a3), which in turn affects User demand (c1) and Values (c2).
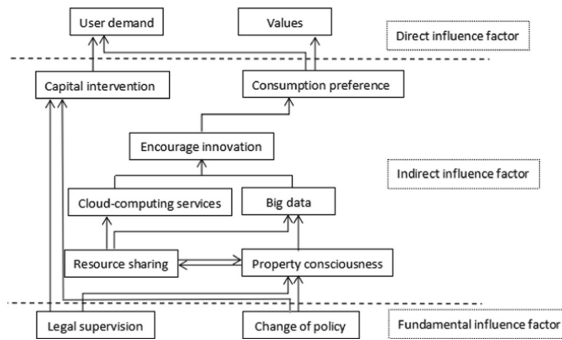
Fig. 8. Multi-level hierarchical structure model of online education platform user usage influencing factors

4.3 Comprehensive Analysis of DEMATEL-ISM Method

In the analysis of the DEMATEL method, the highest ranking factors are Legal supervision (a1) and Change of policy (a2), and the highest ranking factors are User demand (c1) and Values (c2). In the ISM model analysis, Legal supervision (a1) and Change of policy (a2) are analyzed as fundamental influencing factors, and User demand (c1) and Values (c2) are analyzed as direct influencing factors. It can be seen that the nature of the influencing factors obtained by the DEMATEL method analysis and the ISM model analysis is highly consistent, indicating that the DEMATEL method's importance of the online education platform users' use of influencing factors and the judgment of causality are highly consistent with the ISM model's classification of influencing factors. It also proved that the model constructed by the DEMATEL-ISM method is scientific and effective.

5   Conclusion and Suggestion

5.1   Analysis Conclusion

The factors affecting the use of online education platform users are diverse and complex. This article uses PEST to analyze the influencing factors in the four dimensions of political environment, economic environment, social environment and technological environment, and constructs a system model of influencing factors for online education platform users. The DEMATEL - ISM method clarifies the interrelationship and internal mechanism of various influencing factors, sorts out the degree of influence and causal relationship of each factor, and divides the hierarchical relationship of each influencing factor, and explores the direct and fundamental influencing factors. Conclusions are as follow:

1) Legal supervision (a1) and Change of policy (a2) are not only the highest ranking in the DEMATEL centrality analysis, but also the fundamental influencing factors analyzed by the ISM model. This explains that Legal supervision (a1) and Change of policy (a2) are the most important in the entire online education platform system. The reality is described as the implementation of the "Double Reduction" policy and the "precise supervision" of discipline training. This has brought huge impacts, which are manifested in the sharp decline in the equity of relevant online education platforms, the prohibition of capitalization operation which has led to financing blockage and the difficulty of transformation under fierce competition in the industry.

2) User demand (c1) and Values (c2) are not only the highest ranking factors as the result of DEMATEL, but also the direct influencing factors analyzed by the ISM model. This explains that as a direct factor that affects users, the government guides people to pay attention to education while consuming rationally, restricting online education platforms to prohibit malicious competition and monopolistic bidding in an education-based environment; online education platforms reasonably satisfy users demand and reasonable pricing. It is of great significance to check User demand (c1) and Values (c2) well.

3) Big data (d1) in the DEMATEL method analysis, the cause degree is -0.08 close to 0, indicating that Big data (d1) neither affects other factors nor is affected by other factors in the system, but it can be seen in the centrality analysis. The centrality of Big data (d1) ranks second, and it is found that its influence and the degree of influence are basically balanced; in the ISM multi-level hierarchical structure model, it is found that the upper influencing factor of Big data (d1) is to Encourage innovation (a3), and the lower influencing factors are Resource sharing (b1) and Property consciousness (c3). To explore the practical reasons for this peculiar phenomenon, this study believes that on the one hand, the rapid development of big data lays the foundation for the country to deploy digital construction, and the wide application of digital technology promotes the development of big data; on the other hand, with the emergence of data security issues, such as data privacy issues, these will also be used as a constraint to affect the development of big data.

5.2 Practical Advice

1) The government should continue to play a supervisory role and improve the "Double Reduction" policy. The significance of education is to gain the knowledge and broaden the horizon of people, not for the profit only. Online education is a "double-edged sword". On the one hand, the government should continue to improve the "Double Reduction" policy to forcefully curb the problems of online education capitalization operation and disorderly pricing; on the other hand, the government should give full play to its regulatory role to strengthen the online education industry. The development of standardization and legalization allows online education to return to the essence of education and promote the sustainable and healthy development of the online education industry.

2) The online education platform should develop big data while improving the data security mechanism. The online education industry should continue to make good use of the advantages of big data to provide users with high-quality and price-precise

services. At the same time, platforms should consciously protect users' data privacy. The government must continue to improve the legal system related to the protection of Internet data factors. The current "Personal Information Protection Law" severely cracks down on Internet infringements on personal privacy, and explicitly prohibits violations of privacy rights, but there are still illegal collections of data privacy using gaps behavior. The government should further investigate deficiencies and make up for omissions and strengthen the accountability system. The specific rules still need to be improved.

3) It is necessary to find other area of education for online education platforms. The implementation of the "Double Reduction" policy has basically "cleared" K12 off-campus training, and the transformation and development of online education may be a feasible path. Target users of K12 are banned, and online education platforms should consider transforming to the 'blue ocean' market for adult education or vocational education. Adult education and vocational education will become the new development goals of education platforms that are in urgent need of transformation.

5.3 Conclusions

This article uses the PEST analysis method to extract 11 factors that affect the use of online education platform users through the analysis and interpretation of the macro environment. In terms of method, the DEMATEL-ISM method is used to further reveal the influence mechanism and level division between factors by calculating centrality, cause degree, and constructing a hierarchical structure model of influencing factors. Strengthening government control and accountability, continuing to implement and improving the "Double Reduction" policy are the top priorities for the next step in the development of the online education industry. We should tailor the function according to the needs of users, and the users themselves must establish the correct educational values. The platform must not only conform to the development of digital technology to provide users with better services, but also accept government control, eliminate monopoly bids, and strictly prohibit infringement of users' personal privacy.

This study also has certain limitations. Firstly, the research extracted 11 influencing factors but there may be other neglected influencing factors. Second, the factors are extracted at the macro level, and are not from the micro-level. In addition, many online education platforms under the "Double Reduction" policy have been transformed successfully, and exploring the transformation and development of online education platforms under the "Double Reduction" policy will be the focus of the next step of research.

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