Retraction

Retraction: Research on the relationship between new business talents’ ability and its thinking mode in the era of big data (J. Phys.: Conf. Ser. 1774 012009)

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The authors of the article have been given opportunity to present evidence that they were the original and genuine creators of the work, however at the time of publication of this notice, IOP Publishing has not received any response. IOP Publishing has analysed the article and agrees there are enough indicators to cause serious doubts over the legitimacy of the work and agree this article should be retracted. The authors are encouraged to contact IOP Publishing Limited if they have any comments on this retraction.

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Research on the relationship between new business talents' ability and its thinking mode in the era of big data

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Abstract. In the era of big data, the development of "new business" really needs talents who use new ways of thinking to solve economic management problems. Therefore, it is very important to comprehensively analyze the relationship between the ability of new business talents and the way of thinking in the era of big data. Through combing the literature, we have collected and sorted out the thinking mode in the era of big data and the ability requirements of new business for talents. This article selects 9 ability elements, including 4 ways of thinking and 5 talent abilities, to present the structural model of the relationship between the ability of new business talents and their thinking mode in the era of big data. Analyzing the relationship between talent abilities and thinking styles from a new perspective of big data, supplementing and expanding the existing research on new business talent's abilities, is conducive to the update of training programs, and has certain significance for integrating teaching resources and optimizing curriculum structure.

1. Introduction

The concept of "big data" has been put forward for more than ten years. In 2017, the notice of the State Council on the platform for action for promoting the development of big data has more and more important significance to the activities of production and other activities around the world, the way people live in society and the ability of national governance. At the opening ceremony of China international big data industry expo held in 2018, President Xi Jinping once again stressed the importance of national big data strategy to China's economic and social development. In the national information planning of the 13th five year plan issued by the State Council, it emphasizes the importance of making big data and traditional industries progress and develop in coordination. In the process of transformation in the era of big data, it will also stimulate the change of thinking mode, especially the category of thinking, which needs to be positioned from scratch and recognized from scratch in the era of big data. The term "new business" was mentioned by the director of higher education division of the Ministry of education at the meeting of Liverpool in the West. New business is a cross-reorganization of traditional business subjects between different disciplines, and new technologies are integrated into business courses and provide comprehensive interdisciplinary education for students with new ideas and models. As the most closely integrated field with market...
demand and social development in higher education, new business science emphasizes the integration of new technology, especially the integration of big data and other concepts. In the era of big data, this means that enterprises need to transform data, so it needs talents with new thinking mode.

Therefore, the cultivation of new business talents in the era of big data has become the focus of university research. The development of "new business" really needs not only talents with big data technology, but also talents who need to solve economic management problems with new thinking. Therefore, to explore the influence of new business talents' ability and thinking mode, we can deal with the complex relationship hierarchically and find the connection between thinking mode and talent ability in the era of big data, which has certain significance for colleges and universities to construct the ability training system of new business talents in the era of big data.

2. Related works
On the research of thinking connotation in the era of big data. Peng Zhihui read and analyzed the current views on big data thinking, proposed that big data promotes the change of thinking mode, which is mainly reflected in the change of thinking categories, and clarifies the correlation and causality, objectivity and subjectivity, technology and humanities, subject and object, accuracy and fuzziness, new and old, and the change of thinking mode the relationship between "big" and "small"[1]. After analyzing the previous research, Zhou Shijia emphasized that the mode of thinking in the era of big data should be characterized by emergence and integrity, uncertainty and correlation, nonlinearity and diversity [2].

For the research on the change of thinking mode in the era of big data. Zhang Yu combined the theoretical research and practice in the era of big data. After discussing the differences of people's thinking modes in different periods, he analyzed the characteristics of realistic, complex, open and systematic human thinking mode in the era of big data [3]. Wang Hao uses reading to sort out the changes in thinking in the era of big data. He point out that the specific manifestations of the changes in the way of thinking include memory problems, precision problems and mixed problems, overall problems and fragmentary problems, changes in causality and related relationships. And he combined these four aspects to summarize the characteristics of vagueness, predictability and complexity in the change of thinking in the era of big data [4].

On the application research of thinking mode in the era of big data, Feng Changyu and Qi Peng proposed that moral education in Colleges and universities should have all-round thinking, accurate thinking and diversified thinking[5]. On the basis of sorting out the development process of personnel file management in Colleges and universities and analyzing the connotation of big data thinking, Wan Shujun deeply integrates the holistic thinking, predictive thinking and relevance thinking with the management of university personnel archives [6].

With regard to the research on talent requirements under the background of new business. Yu Tingting described the concept and essence of "new business", and elaborated that the training characteristics of new business talents in the Internet era should be changed from compound and professional quality type to cross type and comprehensive type, and pay attention to the cultivation of humanistic qualities such as morality and emotional intelligence [7]. Zhang Xiaolei and others believe that in the Internet era, the new characteristics of business model put forward new requirements for business talents. They should not only have cross professional knowledge, but also have the ability of automatic learning, modern business skills and innovative thinking [8].

Literature studies have found that in the era of big data, there are more studies on the connotation and transformation of thinking mode, but there are few studies on the combination of thinking application direction and talent ability. In the era of big data, what "new business" needs is talents who use new ways of thinking to solve economic management problems. It is necessary to cultivate economic management talents who truly have the way of thinking in the era of big data. One step is to understand the relationship between the ability of new business talents and the way of thinking. Therefore, the interpretive structure model is used to analyze the relationship between the new business talents and the mode of thinking, and the hierarchical structure chart of the influence
relationship between the new business talents and the thinking mode is established, and the complex influencing factors are classified by layers. This will be of great significance to the subsequent design of a series of work such as the framework of the new business talent ability training system.

3. Construction of interpretive structural model
In 1973, Professor J. Warfield developed the interpretive structural model, which can be used to analyze complex social and economic systems. Its main feature is that it can decompose a complex system into several subsystems or sub elements, analyze the relationship between them, and then use computer technology to build a multi-level hierarchical structure model, which is often used in system engineering theory [9].

The construction process of interpretive structural model of the influence relationship between new business talents' ability and thinking mode is as follows: influencing factors of new business talents' ability and thinking mode → establishment of adjacency matrix → generation of reachability matrix → hierarchical reachability matrix → relational hierarchical structure model. On the basis of literature collection and collation, this paper selects four big data thinking modes and five abilities, Holistic thinking, open thinking, relevance thinking, fault-tolerant thinking, lifelong autonomous learning ability, innovation ability, Interdisciplinary expertise, practical ability and Humanistic quality. In the following paper, Si (i=1,2,…,n) refers to the constituent elements of the relationship between the ability of new business talents and their mode of thinking (Table 1).

Table 1. Constituent elements of the relationship between the ability of new business talents and their mode of thinking.

| variable | Relationship elements                          |
|----------|-----------------------------------------------|
| S1       | Holistic thinking                             |
| S2       | Open thinking                                 |
| S3       | Relevance thinking                            |
| S4       | Fault tolerant thinking                       |
| S5       | Lifelong autonomous learning ability          |
| S6       | innovation ability                            |
| S7       | Interdisciplinary expertise                   |
| S8       | practical ability                             |
| S9       | Humanistic quality                            |

Secondly, the adjacency matrix is established. According to the definition of each ability element, the relationship between the elements is listed, and the adjacency matrix is established. In general, the adjacency matrix is defined as A = (aij) n × m, and the element aij is taken as:

\[ a_{ij} = \begin{cases} 1 & \text{S}_i \text{ has a direct effect on } \text{S}_j \\ 0 & \text{S}_i \text{ has no direct effect on } \text{S}_j \end{cases} \]

The adjacency matrix represents the relationship between the elements of the system, it means that Si has a direct effect on Sj, that is, as long as one step Si will affect Sj. The adjacency matrix of relationship element is shown in Table 2.

Table 2. Adjacency matrix of relationship element.

|      | S1 | S2 | S3 | S4 | S5 | S6 | S7 | S8 | S9 |
|------|----|----|----|----|----|----|----|----|----|
| S1   | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 1  | 0  |
| S2   | 0  | 0  | 1  | 0  | 0  | 1  | 0  | 1  | 0  |
| S3   | 0  | 1  | 0  | 0  | 0  | 0  | 1  | 1  | 0  |
Thirdly, the reachability matrix $M$ is generated. The reachability matrix represents a square matrix that can be reached by any long path between two nodes in a directed graph, that is the binary relationship between system elements with arbitrary times of transmission. In this paper, the reachability matrix $M$ is calculated by using the software MATLAB, as shown in the table below.

|     | S1 | S2 | S3 | S4 | S5 | S6 | S7 | S8 | S9 |
|-----|----|----|----|----|----|----|----|----|----|
| S1  | 1  | 0  | 0  | 0  | 0  | 1  | 1  | 1  | 0  |
| S2  | 0  | 1  | 1  | 0  | 0  | 1  | 1  | 1  | 0  |
| S3  | 0  | 1  | 1  | 0  | 0  | 1  | 1  | 1  | 0  |
| S4  | 0  | 0  | 0  | 1  | 0  | 1  | 1  | 1  | 0  |
| S5  | 0  | 0  | 0  | 0  | 1  | 1  | 1  | 0  | 0  |
| S6  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  |
| S7  | 0  | 0  | 0  | 0  | 0  | 1  | 1  | 1  | 0  |
| S8  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  |
| S9  | 1  | 0  | 0  | 0  | 0  | 1  | 1  | 1  | 1  |

Fourth, hierarchical reachability matrix. The hierarchy of interpretative structural model is mainly divided by reachable set $R$, antecedent set $a$ common set $C$. This paper uses level division to determine the hierarchical status of each ability element in the model, which is the key work of establishing multi-level hierarchical structure model. Thus, Hierarchical structure model of the relationship between new business talents’ ability and thinking mode is obtained, as shown in the figure below.
4. Interpretive structural model analysis

Through the construction of the interpretive structural model of the relationship between the ability of new business talents and their thinking mode, hierarchizing and ordering complex ability factors will help us conduct in-depth analysis of the relationship structure between the ability of new business talents and the way of thinking.

The first layer of elements are innovation ability and practice ability, which is the expression layer of the relationship between the ability of new business talents and the influence of thinking mode, which directly reflects the external performance capabilities that new business talents should have.

Innovation capability is the driving force for the deep integration of big data technology and traditional commerce in the new era, and the cross-border integration between different industries. Excellent new business talents need to have innovation consciousness and innovation ability, which is also the basic quality of new business talents. We should have the courage to break through the tradition and put forward new ideas. Under the background of new business, practical ability includes team cooperation ability, organizational leadership ability, optimization analysis ability, independent thinking ability, crisis public relations ability, etc. In the future, economic management talents need to have excellent and comprehensive practical ability to deal with various situations.

The second layer of element is interdisciplinary professional knowledge. New business talents should not only have high-level professional knowledge in economic management, but also have a basic understanding and grasp of the characteristics and development trend of industries such as industry, agriculture, and service industry. They should break the knowledge barriers among different disciplines and achieve the integration of multi-disciplinary knowledge. They also need to master computer skills, such as data mining, evaluation and analysis skills, which are the necessary foundation for new business talents to transform the traditional business operation mode of enterprises with the help of modern Internet tools and improve the business efficiency of enterprises. The more abundant interdisciplinary expertise, the stronger the ability of the performance level.

The third layer of elements are open thinking, relevance thinking, fault-tolerant thinking and lifelong autonomous learning ability. Open thinking requires students to observe things, not only to see the nature of things, but also to see the impact of external environment on its role. Because the
external environment is complex and changeable and dynamic, we can constantly exchange information and get feedback with the outside world with open thinking, so as to promote our progress. Relevance thinking requires us to explore the hidden relationship between seemingly unrelated things, generate new understanding of things, and break the barriers between things. And these two kinds of thinking have strong correlation, they complement each other and influence each other. Compared with the rigorous accuracy thinking, fault tolerant thinking will tolerate a lot. Especially in the era of big data, fault-tolerant thinking requires us to think that all data information has value. Whether it is wrong or correct, it can let us understand problems from different angles and accept the diversity and complexity of things. The same level as these three ways of thinking is the ability of lifelong learning, which means that the talents of economics and management should learn the basic ability, master the method of self-learning and develop excellent habit of self-learning during their study in Colleges and universities, so that they can adhere to self-learning and constantly expand their knowledge system after entering the society in the future, so as to cope with the complex environment of new business. The ability of thinking mode supporting learning, and lifelong autonomous learning ability is the basis of other abilities. These three ways of thinking and lifelong autonomous learning ability are directly affected by the overall thinking, and directly to the interdisciplinary professional knowledge ability, and indirectly affect students' innovation ability and practical ability.

The fourth layer of element is holistic thinking, which refers to regarding any thing as a whole or a system. It is necessary to analyze the interaction and connection between them and grasp the development of things from the overall situation by combining the environment and background as well as various elements in the whole system. Under the background of the new business, facing such a complex business environment, we are required to have overall thinking, to observe and think about problems in an all-round way, and draw different conclusions from different angles, and grasp the essence of things from an overall perspective. Different angles will draw different conclusions and grasp the essence of things from the overall situation. In the thinking ability in the era of big data, the overall thinking is the basis of other thinking and abilities. The first thing we need to do is to control the matter as a whole, and analyze its internal relationship with the environment, so as to have a basic understanding of other thinking modes and abilities.

The fifth layer of elements are the cultivation of humanistic quality and social ability. Compared with the new business, the traditional business courses pay more attention to the cultivation of professional skills, focusing on the courses of economics, finance, accounting, management, etc, ignoring the cultivation of humanistic quality, and lacking the courses of philosophy, history, literature, morality and other humanistic qualities. This is not conducive to improving the moral quality and sense of responsibility of students, and it is more likely to affect the cultivation of new thinking and various aspects in the future learning ability. Moreover, in the era of big data, massive data has become the basic daily life, which will pose a serious threat to users' personal privacy and personal security. At the same time, because of the deep integration of new technology and commerce, the business environment becomes more complex, and the requirements for talents will be higher. In the complex environment, the economic and management talents must have excellent emotional control ability, which can be used to maintain a good positive attitude, relieve various pressures, and encourage themselves.

5. Conclusions
In the era of big data, new business talents with a new way of thinking are needed for the development of enterprises now. To cultivate students' new thinking mode and ability, we need to pay attention to the cultivation of students' humanistic quality. Excellent humanistic quality is the premise of doing everything well. Therefore, under the complex background of new business, the cultivation of new ways of thinking and ability should pay more attention to the cultivation of ethics, and the cultivation of social responsibility and emotion control ability and so on. The second is the cultivation of overall thinking. As the basis of cultivating other thinking and learning other abilities, cultivating students' overall thinking is helpful to help students comprehensively grasp the nature and development of
things from the overall situation, and analyze their internal relations, so as to lay a foundation for learning other abilities. The cultivation and learning of such ability is based on the cultivation of thinking. A complete mode of thinking will play a supporting role in the learning of talents' ability. Open thinking, related thinking and fault-tolerant thinking all support the learning of innovation ability, practical ability and other abilities. Then in the process of practical problem-solving, thinking mode and talent ability are integrated, complementary and mutually reinforcing promoted.

The hierarchical structure model of the relationship between new business talents' ability and thinking mode combines the new thinking mode and talent ability in the era of big data, and hierarchizes the complex ability factors, so as to clearly show the internal structure of the influence relationship system between the new business talents' ability and thinking mode, which can achieve the training scheme for new business talents in economics and management, as well as providing reference for the curriculum and teaching activities.

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