Innovation and Entrepreneurship Teaching Resource Optimization of Film and Financial Media Based on Deep Learning from the Perspective of Ideological and Political Education

Le Zheng

Xi'an Eurasia University, Xi'an, Shaanxi, 710065, China

Abstract: With the development of management decision-making and the rise of new media, the demand of film and financial media for the number and quality of talents is growing. In order to cultivate high-quality talents, it must improve the innovation and entrepreneurship teaching level of film and financial media, and the teaching level is restricted by teaching resources to a certain extent. At present, the film and financial media innovation and entrepreneurship teaching resources in most colleges and universities are relatively single, decentralized, and inefficient in organization and application. In order to solve this dilemma, based on the analysis of the overview of film and financial media as well as the development status of entrepreneurship teaching, and integrated with the deep learning algorithm, this paper conducted an effective study on the optimisation of instructional resources from the perspective of ideological and political education. For the purpose of testing the optimisation effect of the approach, this paper investigated the optimization results of film and financial media innovation and entrepreneurship instructional resources under the depth learning algorithm at three levels, namely, the development, organization and implementation of instructional resources. The results show that the results of this method are 85.038% and 86.750% respectively. From this data, in-depth learning can effectively optimize the innovation and entrepreneurship teaching resources of film and financial media, and its operability in entrepreneurship teaching is more ideal.

1. Introduction

The innovation and entrepreneurship of film and financial media and the optimization of teaching resources are the core direction of the development of entrepreneurship education in the new era from the perspective of ideological and political education. Horst Sven-Ove theoretically discussed the phenomenon of financial media entrepreneurship, and revealed and reflected on the assumptions of current film and financial media entrepreneurship theories and methods through some targeted questions [1]. Achtenhagen, Leona analyzed the phenomenon and system of entrepreneurship education by outlining the development background of financial media, and

promoted the development of media entrepreneurship teaching, a new academic field [2]. Mavlutova, Inese defined multidisciplinary innovation and entrepreneurship education methods and resources such as film and financial media, and used automated software to optimize teaching resources to improve students' professional ability [3]. Centobelli, Piera used confirmatory factor analysis and structural equation model to examine notional models of entrepreneurship instructional resources in the education system, and believed that knowledge development in the internal environment was more conducive to resource optimization [4-5]. At present, the film and financial media innovation and entrepreneurship teaching resources have been improved to a certain extent, but in the new era, the film media industry is developing rapidly. In order to meet the market demand for media industry talents, the teaching resources need to be further explored and optimized.

2. Film and Financial Media Innovation and Entrepreneurship Teaching Resources Optimization

2.1 Overview of Film and Financial Media

Before the dawn of the new culture era, the traditional media industry does have certain cultural connotation and value. However, as the new media technology has evolved, the way the public accepts media information has changed. This has had a great impact on the cultural communication of the media industry. It is difficult to adapt to the film and financial media industry in terms of both program form and content [6]. With the gradual maturity of media convergence, the media industry has developed from the dilemma of convergence into an ideal interactive state. However, the core of media integration is still the mainstream media. As the mainstream media to spread and guide positive energy, film and financial media must adhere to innovative development and cultivate high-quality compound and innovative talents. Therefore, how to optimize the innovation and entrepreneurship teaching resources of film and financial media is particularly critical.

2.2 Current Development of Innovation and Entrepreneurship Teaching

The innovation and entrepreneurship education of film and financial media is an entrepreneurship education targeting college students, aiming at improving students' comprehensive quality and competitiveness in film and financial media entrepreneurship, and driving students to find jobs in the film and financial media industry [7].

The purpose of optimizing instructional resources is to improve the overall configuration of instructional resources and maximize the overall benefits of innovative and entrepreneurial teaching activities from the perspective of ideological and political education. As a systematic way of thinking, the optimization of instructional resources in a wide term is defined as the procedure of organizing and coordinating the resources of different sources, levels and contents in films and financial media, and rationally allocating and organically integrating them so that they can be reorganized into an organic whole and create new resources. From the perspective of the current film and financial media innovation and entrepreneurship teaching, there are still many problems, which are summarized in four aspects:

(1) Lack of scientific planning

At present, although many universities have comprehensively carried out the innovation and entrepreneurship education teaching of film and financial media, from the perspective of teaching resource management and planning, most schools have not yet formulated a clear teaching resource management goal and development direction. Therefore, there is no clear plan on how to reasonably allocate and use the film and financial media innovation and entrepreneurship teaching resources.

The lack of scientific guidance and planning for the application of existing teaching resources makes it impossible for teachers to create synergy in the actual teaching work, which greatly limits the development of innovative and entrepreneurial teaching of film and financial media.

(2) Decentralized educational resources

The departments that carry out entrepreneurial activities in colleges and universities are scattered, and the average share of resources is very small, leading to the low quality of innovation and entrepreneurship teaching in film and financial media. When conducting innovative and entrepreneurial teaching activities in film and financial media, the resources occupied by the profession would be even thinner due to the limited overall resources. At the same time, due to the lack of effective resource sharing mechanism and scientific planning, the organization and development of innovation and entrepreneurship teaching cannot be achieved in the direction of teaching objectives, which affects the quality of innovation and entrepreneurship teaching in film and financial media.

(3) Neglecting the generativity in classroom teaching

The presupposition and generation of teaching resources are the basic characteristics of teaching activities. Without any of them, innovative and entrepreneurial teaching activities are incomplete. From the perspective of presupposition and generation, some teaching resources in the film and financial media entrepreneurship teaching are presupposed conditional resources. If these basic conditions are lacking, teaching activities would not be carried out normally. However, some teaching resources are gradually emerging with the development of teaching activities, and generative teaching resources are one of them. Generative teaching resources mainly include generative resources in presupposition and generative resources beyond presupposition. Teachers tend to ignore the teaching resources beyond the preset. Due to the constraints of the instructional pace, instructors tend to implement teaching as smoothly as possible under the control of linear thinking. As a result, instructors tend to ignore them or try to shun them when dealing with generative instructional resources, which results in the loss and waste of instructional resources

(4) Weak connection with professional teaching

The connection between film and media innovation and entrepreneurship teaching and professional teaching is weak, and the utilization rate of the original professional education resources is low. At present, the entrepreneurship instruction of film and financial media in most colleges and universities only stays at the "superficial level". The entrepreneurship teaching course is only the most basic and universal entrepreneurship course, and its content has nothing to do with the professional courses of film and financial media. This has led to the difficulty in integrating innovation and entrepreneurship teaching with professional teaching, which has virtually restricted the optimization and promotion of instructional resources. Film and media innovation and entrepreneurship teaching is the unity of imparting knowledge and accumulating practice. Generally speaking, imparting entrepreneurial knowledge emphasizes cognition and results, while practice accumulation emphasizes thinking conclusions generated through practice and focuses on practice process and later thinking. Although "entrepreneurship" does not mean that it can be achieved only by possessing knowledge, systematic learning that belittles knowledge has a significant hindrance to "entrepreneurship". Systematic entrepreneurial knowledge and skills are the theoretical basis and support for entrepreneurial activities, and entrepreneurial activities lacking basic entrepreneurial theoretical knowledge are like castles in the air. For film and financial media entrepreneurs, entrepreneurial activities must have professional skills and entrepreneurial skills, that is, they should also receive specific professional education while receiving entrepreneurial education. Therefore, professional education and entrepreneurship education should be an organic whole. In the entrepreneurship teaching of film and media, the two must be combined.

2.3 Deep Learning

From the overview of film and financial media and the current situation of innovation and entrepreneurship teaching development, there are certain problems in the distribution and utilization of instructional resources, and the instructional effect is also low. It is difficult to form an effective thrust in the development of the media market, which seriously restricts the training of film and financial media innovation and entrepreneurship talents. To address this dilemma, this paper proposes the use of deep learning algorithms to facilitate the optimal consolidation of instructional resources.

At present, the deep learning algorithm constructed by neural network has achieved considerable progress and innovative development in many fields. Deep learning is mainly based on the mechanism and principle of human brain learning and operation, and uses several layers of neural networks to learn, train and identify target data, so as to achieve an intelligent algorithm with accurate abstract expression. It can extract the key features of the target object in a certain context to achieve a more comprehensive understanding of the target object. This cognitive approach is a process of continuous iteration and abstraction, as shown in Figure 1:
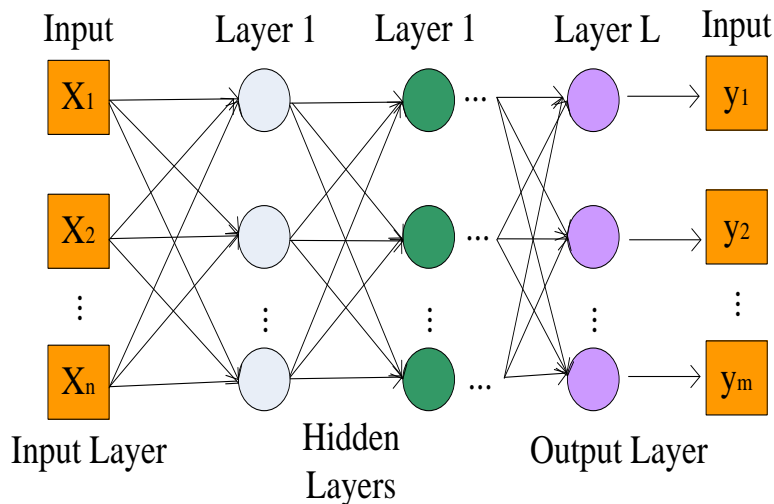

Figure 1: Legend of deep learning model

Deep learning realizes the concept of multi-level neural network. It focuses on the depth of the network. The particularity of its structure can enable complex functional problems to be solved by a smaller range of parameters. Furthermore, deep learning emphasizes the importance of feature learning. In the innovation and entrepreneurship teaching practice of film and financial media, this network algorithm with deep nonlinear structure can approximate complex functions, express input data in a distributed way, and extract its basic characteristics, so that teaching resources can be reasonably configured and optimized.

Based on the actual application and distribution of innovation and entrepreneurship teaching resources in film and financial media, it proposes a restricted Boltzmann machine (RBM) model, which includes several explicit data samples and implicit data samples. The whole network structure is a bipartite graph. Only explicit data samples and implicit data samples can be connected. There is no connection between explicit data samples and implicit data, as shown in Figure 2:
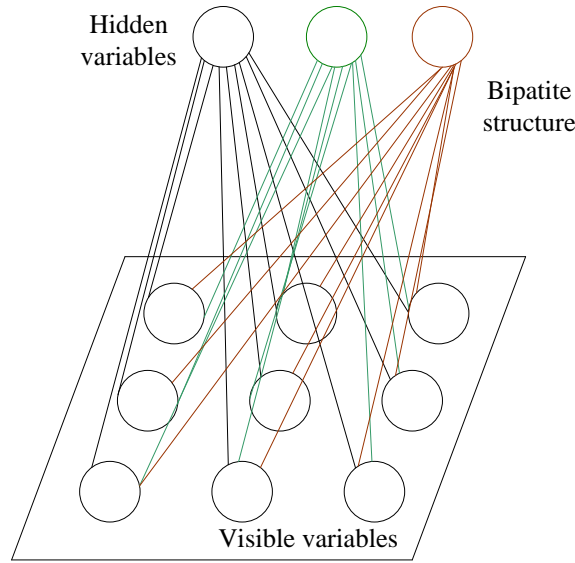
Figure 2: Legend of RBM model

In deep learning, RBM is an energy based model, in which any variable can be defined as having a certain amount of energy. It defines the distribution of innovation and entrepreneurship teaching resources of film and financial media through energy function. Therefore, the combined allocation of RBM's explicit teaching resource variable h and implicit teaching resource variable v is as follows:

$$E(v,h,\theta) = -v^T W h - b^T v - a^T h = -\sum_{ij} W_{ij} v_i h_j - \sum_i b_i v_i - \sum_j a_j h_j \qquad (1)$$

The specific meanings of the parameters in Formula 1 are shown in Table 1:

Table 1: The specific meaning of each parameter

Sequence	Parameter	Meaning
1	θ	Parameters of RBM
2	W_{ij}	Weight value between visible unit and hidden unit
3	b_i	Offset of visible cells
4	a_j	Offset of hidden cells

Among them, $\theta = \{W, a, b\}$ can obtain the joint probability of v and h after obtaining the jointly configured resources of v and h:

$$P(v,h,\theta) = \frac{1}{z(\theta)} exp\big(-E(v,h,\theta)\big) \qquad (2)$$

$$Z(\theta) = \sum_v \sum_h exp\big(-E(v,h,\theta)\big) \qquad (3)$$

$P(v,h,\theta)$ is Boltzmann distribution function. It can be written as:

$$P(v,h,\theta) = \frac{1}{z(\theta)} exp\big(\sum_{i=1}^{D} \sum_{j=1}^{F} W_{ij} v_i h_j + \sum_{i=1}^{D} v_i b_i + \sum_{j=1}^{F} h_j a_j\big) \qquad (4)$$

RBM model has a unique dual structure, which can clearly distinguish the implicit data node from the explicit data node. That is, when the explicit data node or implicit data node is known, it can be obtained from the conditional distribution of related nodes:

$$P(v|h) = \prod_{i=1}^{n} P(v_i|h) \qquad (5)$$

$$P(h|v) = \prod_{j=1}^{m} P(h_j|v) \tag{6}$$

Then it hopes to maximize the likelihood function of teaching resource data as $P(v,\theta)$, and its marginal distribution can be obtained as follows:

$$P(v,\theta) = \frac{1}{z(\theta)} \sum_h exp(-E(v,h,\theta)) = \frac{1}{z(\theta)} exp(b^T v) \prod_{j=1}^{F} \left(1 + exp(a_j + \sum_{i=1}^{D} W_{ij} v_i)\right) \tag{7}$$

RBM parameters can be obtained by maximizing $P(v,\theta)$, and maximizing $P(v,\theta)$ is equivalent to maximizing $log(P(v,\theta))$, which can be represented by $L(\theta)$:

$$L(\theta) = \frac{1}{N} \sum_{n=1}^{N} logP(v^{(n)},\theta) \tag{8}$$

First, it need to get the derivative of $L(\theta)$ over W, and finally it can get:

$$\frac{\partial L(\theta)}{\partial W_{ij}} = \frac{1}{N} \sum_{n=1}^{N} \frac{\partial}{\partial W_{ij}} log\left(\sum_h exp[v^{(n)T}Wh + a^T h + b^T v^{(n)}]\right) - \frac{\partial}{\partial W_{ij}} logZ(\theta) \tag{9}$$

First, obtain the status of h when the explicit teaching resource data v is known, then adjust the explicit teaching resource variable v_1 according to the status of h, and then reconstruct the implicit teaching resource vector h_1 in the v_1 state. Since the RBM model is a binary structure, when the explicit teaching resource variable v_1 is known, the implicit teaching resource vector h_1 is independent of each other. Similarly, when the implicit teaching resource variable h_1 is known, the explicit teaching resource vector v_1 is independent of each other, namely:

$$P(h|v) = \prod_j P(h_j|v) \tag{10}$$

$$P(h_j = 1|v) = \frac{1}{1+exp(-\sum_i W_{ij} v_i - a_j)} \tag{11}$$

The same can be got

$$P(v|h) = \prod_i P(v_i|h) \tag{12}$$

$$P(v_i = 1|h) = \frac{1}{1+exp(-\sum_j W_{ij} h_j - b_i)} \tag{13}$$

Under the adjustment and reconstruction of the sample set, the optimization of innovation and entrepreneurship teaching resources of film and financial media becomes feasible.

3. Practice of Optimizing Teaching Resources

For the purpose of evaluating the validity of the innovation and entrepreneurship instructional resources optimization of film and financial media based on deep learning, this paper has optimized the innovation and entrepreneurship teaching resources of film and financial media major in a university. The overall teaching resources of innovation and entrepreneurship courses in this major can be quantified and used as input data to train and learn them using deep learning algorithm models. After joint configuration and scientific optimization, they can be used in the entrepreneurship teaching practice of senior students of film and financial media major in this school. In order to intuitively reflect the effect of this method in the optimization of teaching resources, this paper has investigated and evaluated the development, organization, application and other aspects of teaching resources, determined the weight and scoring standard through the Delphi method. The full score is 100 points, and the paper made a comparison with the conventional instructional resource management mode. Before the practice, this paper investigated the present condition of the school's film and financial media instructional resources, as indicated in in Table 2:

Table 2: Current situation of innovation and entrepreneurship teaching resources

Sequence	Item	Proportion
1	Course resources	32.11%
2	Skills Resources	8.03%
3	Teacher resources	24.53%
4	Concept resources	5.77%
5	Facility resources	21.77%
6	Other resources	7.79%

From Table 2, the explicit teaching resources and implicit teaching resources of the film and financial media major in the school are currently in an extremely unbalanced state. The explicit teaching resources such as professional courses, teachers and facilities account for a large proportion, but the implicit teaching resources such as skills and ideas account for a small proportion.

(1) Development of teaching resources

From the survey results of the current situation of innovative and entrepreneurial teaching resources in film and financial media, it can be seen that the school is relatively ideal in the development of explicit teaching resources. However, recessive teaching resources are equally important in innovation and entrepreneurship theory teaching and practice teaching. The diversity and hierarchy of teaching resources determine the teaching effect to a certain extent. After using two methods to optimize the existing five types of teaching resources (except other teaching resources) for the school's film and financial media innovation and entrepreneurship, this paper evaluates their diversity and hierarchy. The results are shown in Figure 3:
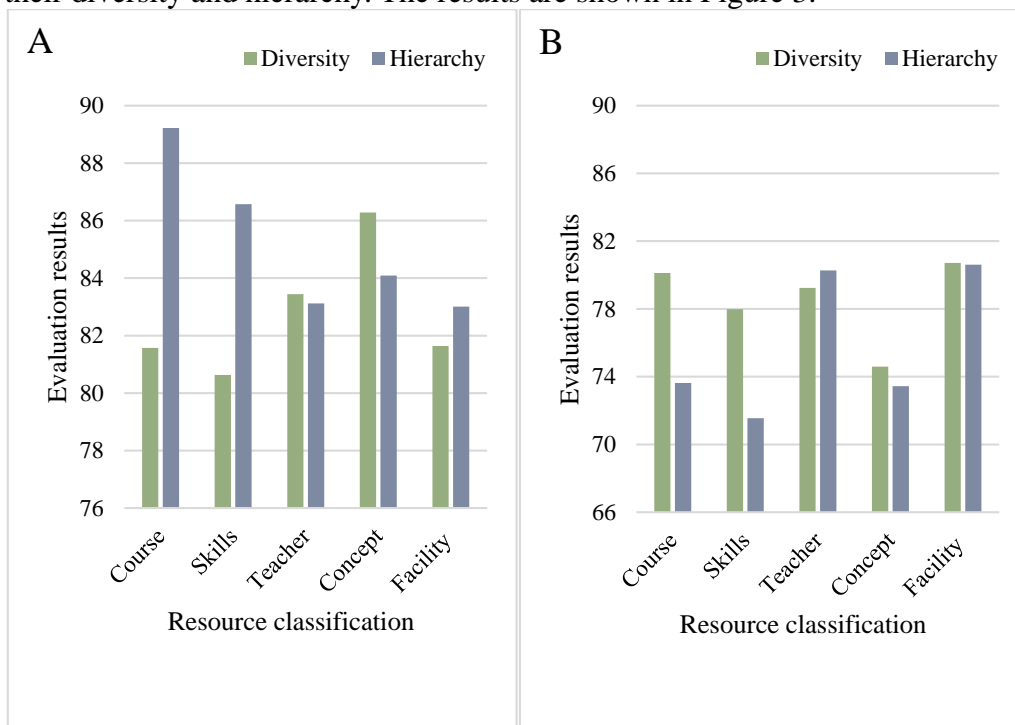

Figure 3: Evaluation of teaching resources development (Figure 3A shows resource development under deep learning, Figure 3B shows the resource development under the traditional method)

From Figure 3, the performance of the two methods in the development of teaching resources presents different levels. In Figure 3A, the evaluation results of diversity and hierarchy of innovation and entrepreneurship teaching resources of film and financial media based on in-depth

learning are relatively ideal. The average value of the diversity evaluation results of the five types of teaching resources is 82.712 points, and the average value of the hierarchical comprehensive evaluation results is 85.202 points. It can be seen that according to the learning and training of the algorithm model, the main features of teaching resources can be accurately identified. In the process of developing teaching resources, in-depth learning can use the results of feature recognition, combined with teaching practice, to dig out more teaching resources that match the development of the film and financial media market more closely. This has also promoted the hierarchical development of teaching resources to a certain extent and met the needs of the media market for different talents. In Figure 3B, the traditional teaching resource management method is too simple for the development of teaching resources. The mean results of the diversity and hierarchy ratings for the 5 categories of instructional resources are 78.528 and 75.9 respectively, which is difficult to match with the objectives of instruction in innovation and entrepreneurship in film and finance media.

(2) Organization of teaching resources

The organization of teaching resources refers to the consolidation of instructional resources. In the innovation and entrepreneurship instruction of film and financial media, the spread of instructional resources and the degree of connection between practice and theoretical courses all belong to the scope of consolidation of instructional resources. If the distribution of teaching resources is too decentralized or the practice and theory courses are disconnected, the integration of teaching resources would be affected, thus hindering the overall organization of teaching resources. Therefore, this paper evaluates the integration of optimized teaching resources, as shown in Figure 4:
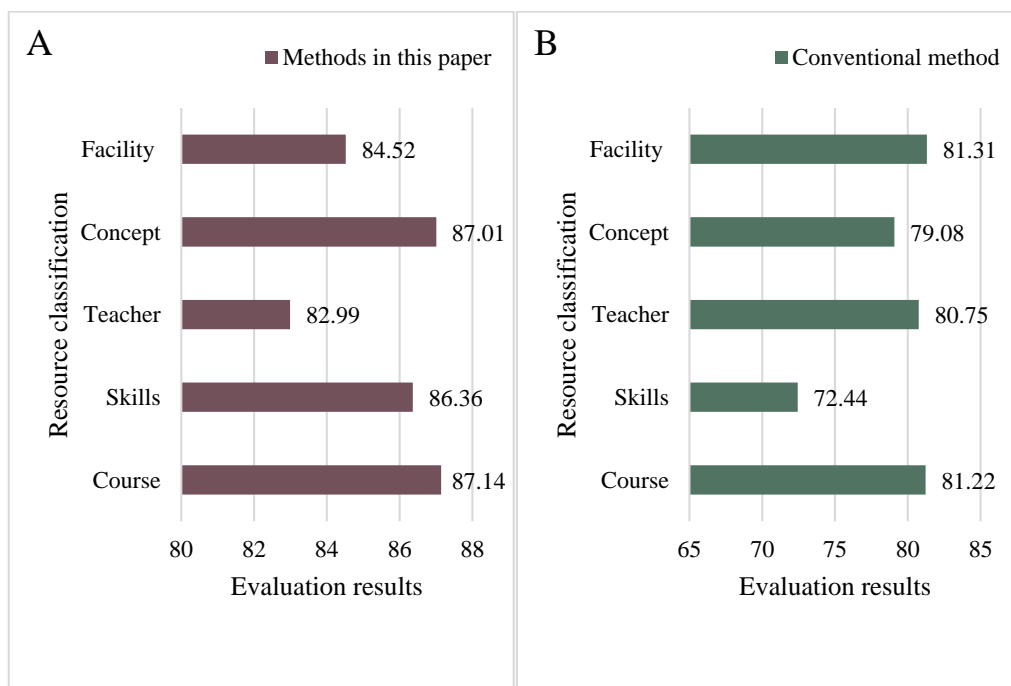

Figure 4: Organizational evaluation of teaching resources (Figure 4A shows the resource organization under deep learning, Figure 4B shows the resource organization under the traditional method)

In Figure 4A, the integration of teacher resources under this method is generally high, and the evaluation results of five types of teaching resources are 87.14 points, 86.36 points, 82.99 points, 87.01 points and 84.52 points respectively. The average is 85.604 points, and the gap between the integration of explicit resources and implicit resources is not significant. It can be seen that the

distribution of film and financial media innovation and entrepreneurship teaching resources under in-depth learning is relatively balanced, and the relationship between theory and practice courses is relatively close, and the organization of teaching resources is relatively scientific. In Figure 4B, the evaluation results of five types of instructional resources are 81.22 points, 72.44 points, 80.75 points, 79.08 points and 81.31 points respectively, with an average of 78.96 points. Compared with explicit resources, the integration of implicit resources is generally low. It can be seen that under the traditional management mode of teaching resources, the imbalance of teaching resources has not been significantly improved, and the organization of teaching resources is still unreasonable.

(3) Application of instructional resources

The application of instructional resources includes the degree of resource utilization and the benefits generated by the resources. The greater the utilisation and benefit of resources, the better the optimization effect of teaching resources. The outcome of the assessment of the utilization rate and efficiency rate of teaching resources of the two methods are shown in Figure 5:
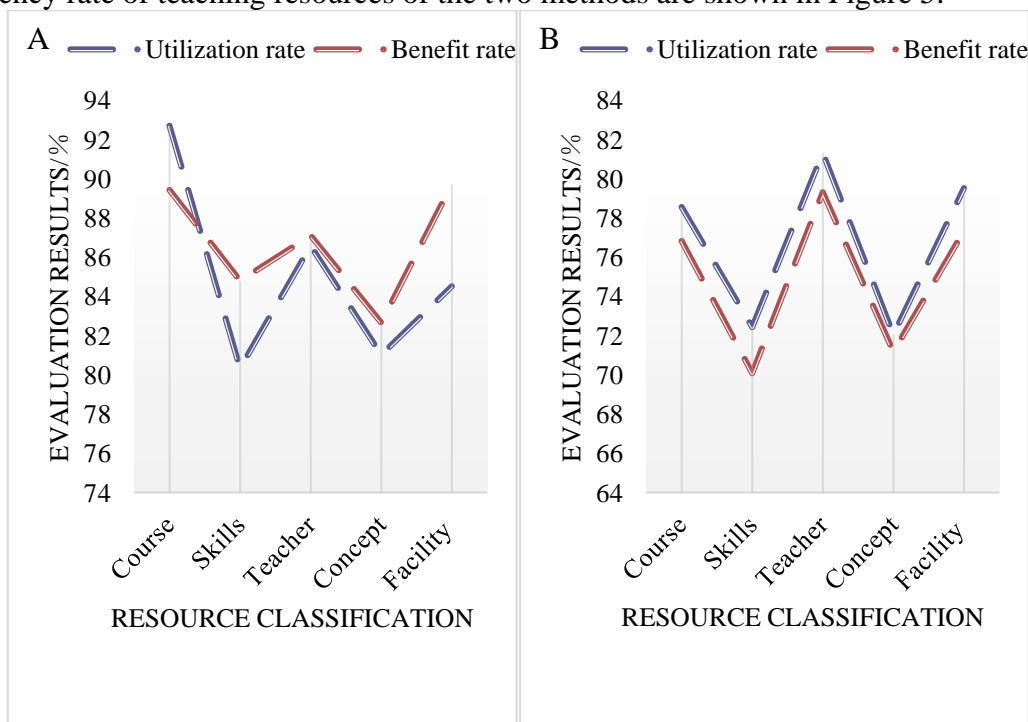

Figure 5: Evaluation on the application of teaching resources (Figure 5A shows the resource application under deep learning, Figure 5B shows the resource application under the traditional method)

From Figure 5A, the application effect of teaching resources under in-depth learning is ideal. The evaluation results of the teaching resource rate and the efficiency rate have reached more than 80%. Among them, the average utilization rate of innovative and entrepreneurial teaching resources of film and financial media reached 85.038%, and the efficiency rate reached 86.750%. In Figure 5B, the average utilization rate and benefit rate of innovative and entrepreneurial teaching resources of film and financial media under the traditional teaching resource management mode are 76.782% and 74.954% respectively, and their resource utilization and resource benefit results are lower than those of this method. In teaching practice, the fundamental purpose of the development and organization of instructional resources is to bring the value of teaching resources into play and seek the maximum utilization of resources and the optimization of benefits. From the perspective of the two optimization methods, the advantages of the deep learning algorithm are obvious. It can effectively adjust and reconstruct the innovation and entrepreneurship teaching resources of film

and financial media, making them meet the actual teaching needs.

4. Conclusions

The optimization of film and financial media innovation and entrepreneurship teaching resources is mainly achieved through scientific and effective resource management decisions from the perspective of ideological and political education. The in-depth development of the media market has raised higher requirements for the training of innovative and entrepreneurial talents in film and financial media. In order to better configure and optimize the teaching resources and promote the in-depth development of management decision-making and entrepreneurship teaching, this paper combined with in-depth learning, conducted an effective study on the optimization of innovation and entrepreneurship teaching resources of film and financial media, and effectively developed the teaching resources. It improves the diversity and hierarchy of resources, and improves the integration, utilization and efficiency of instructional resources through the organization and application of algorithm science. Although this research has made some achievements in the optimization of teaching resources, there are still many areas that need to be adjusted and improved. In the follow-up research, these deficiencies and limitations would be effectively corrected to provide more scientific and considerable suggestions for the development of film and financial media teaching.

References

[1] Horst Sven-Ove, and Paul Clemens Murschetz. Strategic media entrepreneurship: Theory development and problematization. Journal of Media Management and Entrepreneurship, 2019, 1(1): 1-26.

[2] Achtenhagen Leona. Media entrepreneurship—Taking stock and moving forward. International Journal on Media Management, 2017, 19(1): 1-10.

[3] Mavlutova Inese. Innovative teaching techniques for entrepreneurship education in the era of digitalisation. WSEAS Transactions on Environment and Development, 2020, 16(1): 725-733.

[4] Centobelli Piera. The mediating role of knowledge exploration and exploitation for the development of an entrepreneurial university. Management Decision, 2019, 57(12): 3301-3320.

[5] Du Yanhan, and Lin Zhang. Sessions Prediction for Open Educational Resources Based on Deep Learning. International Core Journal of Engineering, 2020, 6(3): 153-161.

[6] Yong Binbin. Online practical deep learning education. Educational Technology & Society, 2022, 25(1): 193-204.

[7] Dal Zotto Cinzia, and Afshin Omidi. Platformization of media entrepreneurship: A conceptual development. Nordic Journal of Media Management, 2020, 1(2): 209-233.