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Innovation of Information Literacy Training Mode for Teachers of Finance and Economics in Higher Vocational Colleges in the Era of Big Data

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Abstract With the continuous development and progress of the big data era, the requirements for information data processing ability in the teaching profession have become more and more stringent. This study first analyzes the composition of information literacy, and designs a training model based on task and project learning for the relationship between the composition of information literacy of finance and economics teachers in higher vocational colleges and universities. Then the training effect was examined using the fuzzy comprehensive evaluation algorithm, and a regression model was constructed for the influencing factors of training effectiveness. Finally, the combination of the constructed information literacy evaluation indicators provides a scientific basis for the empirical analysis. In the analysis, it can be seen that the average value of the first-level indicators is between 4.575 and 4.742, and the average value of the second-level indicators is between 4.259 and 4.955, which indicates the scientific nature of the evaluation index system in this paper. And in the regression analysis, the impact coefficients of training courses and training design are the highest, 3.45 and 3.44 respectively, and all the dimensions of the information literacy training model for finance and economics teachers designed in this paper are higher than 85 points. The training model in this paper has excellent performance in teachers' information literacy training and provides a proven model for information literacy training of higher vocational finance and economics teachers.

Index Terms fuzzy synthesis, regression model, comprehensive evaluation, information literacy, training model

I. Introduction

With the arrival of the era of big intelligence and cloud, the knowledge and skill structure of financial talents has changed dramatically, and the rapid development of the industry requires the cultivation of financial talents [1], [2], and the change from accounting to management accounting [3]. Higher vocational vocational school teachers are known as "teachers of craftsmen", both preaching and teaching [4], "teachers of craftsmen" is one of the core elements that determine the quality of vocational education and the quality of personnel training [5], [6], so the construction of higher vocational finance and economics faculty is imminent! Therefore, the construction of higher vocational finance and economics faculty is urgent [7], and it is also necessary to carry out transformation and learn new technologies and skills in order to cultivate talents that meet the needs of the industry [8]. Not only should we focus on the practical ability of financial accounting, but also pay attention to the analysis of the application of financial management and management accounting in the production and operation process of enterprises [9],

[10].

Teachers in finance and economics colleges and universities need to keep abreast of the times in the teaching process, actively improve classroom teaching, and gradually integrate information technology into classroom learning [11]. The current means of education is characterized by informatization, especially the application of educational technology, including educational equipment, teaching means and educational methods. Teachers of finance and economics in the new era should build modern teaching scenarios to stimulate students' motivation [12], [13].

As teachers of finance and economics colleges and universities should not stop at teaching textbook content, but should combine college characteristics with professional content, combine student needs with professional content, and teach knowledge more suitable for finance and economics students [14]. To improve the effectiveness of college teaching, we must recognize the need to study students and its basis, grasp the scope of the content of the study of students, and design the methodology of the study of students. This can greatly

mobilize the enthusiasm of students of finance and economics and obtain positive feedback inside and outside the classroom [15], [16].

There is also a need to improve the practicability of the teacher training system. High knowledge literacy requires finance and economics teachers to be rich in knowledge level, not limited to the knowledge points in books, and have strong comprehensive quality [17]. And the knowledge will be transformed into a teaching system to meet the needs of student development [18]. Talent cultivation in financial colleges and universities, focusing on the combination of theoretical and practical, which requires further improvement of the financial teacher training system, focusing on the cultivation of teaching practice.

This study examines information literacy from the aspects of information awareness, information theory and ethics, information knowledge and information competence composition, and combines them with the development of teachers' information literacy to analyze the relationship between the composition of financial teachers' information literacy. Then, a teacher information literacy training model based on task and project learning was designed with the main focus on self-directed inquiry and action research. Fuzzy comprehensive evaluation and regression model were also combined to assess the training effect of teachers' information literacy. On this basis, an information literacy training index system consisting of 5 first-level indicators and 11 second-level indicators is constructed, and the training effect evaluation index system of this paper is combined with empirical analysis to study the application value of the training model of this paper in practical application.

II. Training Models for Information Literacy for Finance and Economics Teachers

A. Components of information literacy

The component structure of information literacy is shown in Figure 1. With the development of educational informatization, information literacy has become a necessary personal literacy for a qualified teacher. The main components of information literacy are information awareness, information theory and ethics, information knowledge and information competence. Among them, the contents of information competence are as follows:

- 1) Use of information tools, which generally refers to the hardware and software tools for acquiring, processing and utilizing information.
Information tools generally refer to the hardware and software tools on which the acquisition, processing and utilization of information depend. Therefore, one should master the basic methods of using them and apply them flexibly and creatively in the process of dealing with practical problems.
- 2) Searching for and obtaining information, i.e., having the ability to search for and utilize information, and being able to search for and obtain relevant information

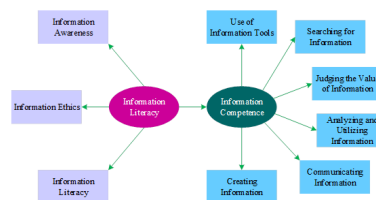


Figure 1: Information literacy composition

more accurately and efficiently by utilizing information tools and combining direct and indirect experience with research methods such as studies and experiments.

- 3) Value judgment of information, i.e., people with information literacy can make accurate value judgment of the acquired information, analyze whether it can meet the needs of problem solving, and can critically select the information that is objective, true, reliable, authoritative, and time-sensitive.
- 4) Analyze and utilize information, i.e. the ability to analyze and synthesize information according to the actual situation.
- 5) Communication and dissemination of information, that is, in the process of transmission and exchange of information, so that the value and role of the dissemination of the surface and the number of people using the information and the ability to increase.
- 6) Creative generation of information, i.e., in acquiring, processing, and utilizing information to solve practical problems, it is necessary to have a high level of information sensitivity and information technology, as well as a strong ability to think creatively.

B. Relationship between the components of information literacy of finance teachers

For teachers of finance and economics, teachers' information literacy requires information literacy learning and thus cumulative knowledge. It requires the cultivation of the environment and mental internalization, followed by the teachers' own experience, i.e., the mastery and purity of technology. More importantly, financial teachers need to have the ability to cultivate qualified citizens in the information age and have information social responsibility. Therefore, the composition of information literacy of finance and economics teachers can be divided into information knowledge, information awareness, information ability and information social responsibility. The relationship between the composition of teachers' information literacy is shown in Figure 2. Teachers' information literacy is derived from citizens' information literacy, and its basic composition includes three parts: information knowledge, information awareness and information competence, but the requirements of these three parts for teachers are higher than those for citizens in general, and they are very closely combined with teachers' education and teaching work. In the composition of citizens' information literacy, there is a very important aspect of "information ethics", which is replaced

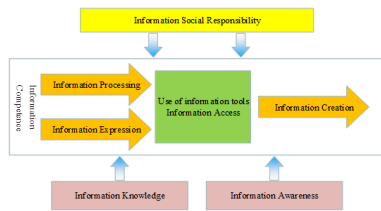


Figure 2: The elements and relationships of teacher information literacy

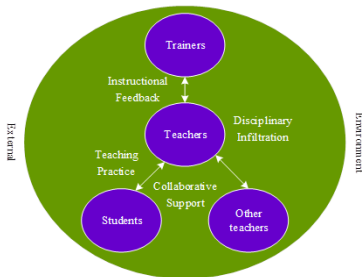


Figure 3: Training mode of teacher information literacy

by "information social responsibility" in teachers' information literacy, and "information social responsibility" contains "information ethics". This is replaced by "information social responsibility" in teachers' information literacy, which contains elements of "information ethics" but is broader in scope, taking more account of the requirement for teachers to help their students become qualified citizens in the information age.

C. Information Literacy Training Model Design for Finance Teachers

The framework of the training model based on task and project learning is shown in Figure 3, which emphasizes communication, cooperation and resource sharing in the process of training finance and economics teachers in information literacy, and evaluation and reflection throughout the training process. The teacher information literacy training model proposed in this paper is supported by a certain external environment, organizing teachers to participate in the "combination of long and short" school-based training and "subject penetration teaching practice, experiencing activities in these two teaching scenarios, and prompting teachers to carry out in-depth cooperation and conversation, completing each action sequence, so that teachers in higher education can be trained in the process of information literacy, which is the most important part of the training process. In the activities, teachers are encouraged to have in-depth cooperation and conversation with each other, and to complete each action sequence, so that the information literacy of college teachers can be improved.

The process of cultivating teachers' information literacy is shown in Figure 4. The whole cultivation process of this paper's cultivation model reflects the concept of information age education, active learning by means of self-directed inquiry and action research, and mastering the theoretical knowledge of teaching and learning in the information age, while at the

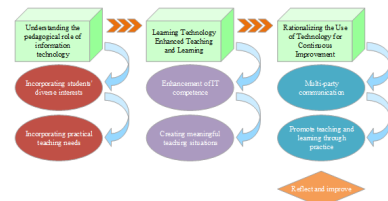


Figure 4: Process of teacher information literacy culture

same time, combining the different interests of students to formulate the cultivation method suitable for today's students. Experiencing, understanding and applying the methods of educational research and reflection to cultivate information competence, the most important literacy, as well as the spirit and ability of innovation. Continuously improve the level of information technology and competence of college teachers and use it to create more meaningful multimedia teaching situations. In this learning mode, college teachers should constantly summarize their teaching experience, discover educational and teaching problems independently through multiple exchanges with other teachers, explore solutions through practice, and obtain conclusions. Its essence is to let college teachers learn in the process of "re-discovering" and "reassembling" the knowledge of education and teaching, and continuously improve and refine.

III. Comprehensive Evaluation of the Effectiveness of Training for Finance Teachers

Fuzzy comprehensive evaluation is based on fuzzy mathematical theory, a method of comprehensive evaluation of the status of the rated items from multiple influencing factors. It is a good solution to the ambiguity and uncertainty of judgment. The advantages of qualitative analysis and quantitative analysis have been widely used in many areas due to fuzzy comprehensive evaluation. The fuzzy comprehensive evaluation has been used for the evaluation of project progress and construction risk of domestic and foreign projects, the evaluation of coal mines and geological hazards, the quality evaluation of the service, the performance of the company and the performance evaluation of employees. Based on the factors that influence the quality ability, each influence factor can be further divided into many different aspects, and the effect of the teacher information literacy training is evaluated by using the fuzzy comprehensive evaluation method and the regression model.

A. Fuzzy integrated evaluation

In the index system for evaluating the effect of information literacy training for higher vocational teachers, the participating teachers, as the object of evaluation, have no clear distinction between affirmative and negative subjective judgments such as their views on the training program and their personal experience of transforming the learning process, and the introduction of the fuzzy mathematical law of the fuzzy comprehensive evaluation method for arithmetic and synthesis effectively gets

rid of the dilemma of the difficulty of quantitatively analyzing the qualitative indexes, and solves the conflict between the subjective feelings and objective assessment of the teachers' participation in the training. It solves the conflict between teachers' subjective feelings and objective evaluation, and enables the study to synthesize all factors related to training evaluation and obtain quantitative results that can fully reflect the training effect.

Steps of evaluation using fuzzy comprehensive evaluation method: Consider the evaluation target as a fuzzy set composed of multiple factors (called factor set C), then set the evaluation levels that can be selected by these factors to form a fuzzy set of rubrics (called rubric set V), respectively find out the degree of belonging to each single factor to each evaluation level (called fuzzy matrix or rubric matrix R), and then find out quantitative solution value of evaluation through fuzzy matrix synthesis according to weight assignment of each factor in the evaluation target. Then, according to the weight distribution of each factor in the evaluation objective, the quantitative solution value of the evaluation is derived through fuzzy matrix synthesis.

- 1) Set the set of factors and the set of evaluation levels for the evaluation object. Let U be the fuzzy set consisting of m factors (i.e.) evaluation indicators, $U = \{u_1, u_2, \dots, u_m\}$, and let V be the set of evaluation ratings that can be selected for these factors, $V = \{v_1, v_2, \dots, v_n\}$. where m is the number of evaluation indicators and n is the number of evaluation ratings.
- 2) Constructing a fuzzy relationship matrix. First, each single evaluation indicator $u_i (i = 1, 2, \dots, m)$ of the evaluation object is quantified, and it is determined that the affiliation degree of the evaluation object to evaluation level $v_j (j = 1, 2, \dots, n)$ from the perspective of evaluation indicator u_i is r_{ij} , which results in a single evaluation indicator judgment set for the i th evaluation indicator u_i :

$$r_i = (r_{i1}, r_{i2}, \dots, r_{in}). \tag{1}$$

This results in a total fuzzy evaluation matrix R :

$$R = (r_{ij})_{m \times n} = \begin{bmatrix} r_{11} & r_{12} & \dots & r_{1n} \\ r_{21} & r_{22} & \dots & r_{2n} \\ \vdots & \vdots & \ddots & \vdots \\ r_{m1} & r_{m2} & \dots & r_{mn} \end{bmatrix}. \tag{2}$$

In matrix R , r_{ij} indicates the degree of affiliation of this rubric to the v_j rank fuzzy subset from the evaluation index u_i , i.e., r_i indicates the frequency distribution of the i th factor u_i on the j th rubric v_j , which is generally normalized so that it satisfies $\sum r_{ij} = 1$. The determination of r_{ij} determines the accuracy of the fuzzy comprehensive evaluation results, so the method of determining the method should be optimally chosen by adhering to the original intention of the study which is scientific and rigorous and seeking truth from facts. In this study, the hierarchical weighting method is chosen

to determine the affiliation matrix, which is in line with the basic principle of fuzzy comprehensive evaluation.

- 3) Determination of weights using hierarchical analysis. Each evaluation indicator in the set of evaluation indicators has different weights in the comprehensive evaluation, and this study uses the hierarchical analysis method to determine the order of relative importance of the indicators. A fuzzy subset A on U is introduced, and the weight vector $A = (a_1, a_2, \dots, a_m)$, where $a_i \geq 0$, and $\sum a_i = 1$.
- 4) Synthesize the fuzzy comprehensive evaluation result vector. The different rows in R reflect the degree of affiliation of the evaluated object to each level of fuzzy subset from different single evaluation indicators. By synthesizing the different evaluation indicators with the fuzzy weight vector A , the degree of affiliation of the evaluated object to each level of fuzzy subset from the general point of view, i.e., the fuzzy synthesized evaluation result vector, can be obtained. The fuzzy comprehensive evaluation result vector is obtained by synthesizing A with R of each evaluated object using operator $B = A * R$ ($*$ is the operator symbol):

$$B, B = (b_1, b_2, \dots, b_n). \tag{3}$$

The ordinary matrix multiplication method (i.e., weighted average method) is generally used, which is a model that allows each factor to contribute to the comprehensive evaluation and reflects the full picture of the object of evaluation in a more objective way. A is called input and B is called output. If the rubric result $\sum b_j \neq 1$, it should be normalized. b_j indicates the degree to which the evaluated object has rubric v_j .

- 5) Analyze the fuzzy comprehensive evaluation result vector. When choosing the decision-making, the maximum affiliation rule can be used to process it and get the final evaluation result, so that the rank v_j corresponding to the largest b_j can be chosen as the result of the comprehensive evaluation. The resultant B is still a column vector, which can not be directly used for the comparison and ranking of the evaluation objects, so it needs further analysis and processing. Let the parameter column vector be given relative to each rating v_j :

$$C = (c_1, c_2, \dots, c_n)^T. \tag{4}$$

Then, the result of the grade parameter judgment can be derived as: $p = B * C$. Since p is a real number, it is possible to compare and rank the advantages and disadvantages of different evaluation objects according to the size of p .

B. Regression Modeling of Cultivation Influences

The specific form of the information literacy training effectiveness function for higher education teachers is:

$$y = \beta_0 + \beta_{1x1} + \beta_{2x2} + \beta_{3x3} + \beta_{4x4} + \beta_{5x5} + \beta \dots \tag{5}$$

In the above formula, y is the training effect score of higher vocational teachers, this mathematical model reflects the deterministic relationship between the training effect of higher vocational teachers and its influencing factors, the training effect of higher vocational teachers may also be affected by other unexpected factors or random factors, therefore, adding the random term in the model, u , u represents the other possible influencing factors on the training effect of higher vocational teachers.

The econometric regression model is as follows:

$$y_i = \beta_0 + \beta_{1x1i} + \beta_{2x2i} + \beta_{3x3i} + \beta_{4x4i} + \beta_{5x5i} + \beta_{6x6i} + u_i. \quad (6)$$

According to the influencing factors, regression coefficients $\beta_1, \beta_2, \beta_3, \beta_4, \beta_5$ and β_6 represent the influencing factors on the effectiveness of teacher training, the expected regression coefficients $\beta_1, \beta_2, \beta_3, \beta_4, \beta_5$ and β_6 are positive, and u_i denotes the random perturbation term.

IV. Empirical Analysis of Information Literacy Training for Higher Education Finance and Economics Teachers

A. Construction of Evaluation Indicators for the Effectiveness of Information Literacy Training

Relevant literature was reviewed to ensure that the evaluation system established in this study is more in line with the reality of the information literacy training effect of higher vocational finance and economics teachers. It also evaluates the experts involved in the consultation from a statistical point of view with the 25 experts selected. The results of the 25 experts' inquiries were categorized and organized according to the indicators, and the scoring results of the first round of indicators at all levels were statistically calculated to analyze and screen the five first-level indicators, which are A training reaction, B training needs, C training learning, D training behavior and E training results. The screening data of the first-level indicators are shown in Table 1, the average value of the five first-level indicators from A to E is between 4.575 and 4.742, the maximum standard deviation is 0.635, which is less than 1, and the coefficient of variation is between 0.09251 and 0.12975, which indicates that the experts have unified their opinions on the first-level indicators, and all the five first-level indicators are retained.

The screening data of secondary indicators are shown in Table 2, and the secondary indicators are the further specific presentation and meaning of the connotation of the primary indicators, and the primary indicators and the secondary indicators interact with each other. The secondary indicators of training effectiveness constructed in this paper are composed of 11 indicators, including A1 access basis, A2 training conditions, B1 teacher training desire, B2 course training demand, C1 training design, C2 training course, C3 instructor qualification, D1 training quality management, D2 external construction, E1 overall ability of training participants and E2 training participant feedback. The mean value of each indicator is between 4.259 and 4.999, the maximum standard

deviation is 0.491, and the coefficient of variation is less than 0.15, confirming that all the secondary indicators are retained.

By calculating the weight values of the indicators at all levels of the evaluation system and after the consistency test, the results of the evaluation indicators and comprehensive weights of this paper for the information training of higher vocational finance and economics teachers are obtained. The evaluation indicators and weights of information literacy training for finance and economics teachers are shown in Table 3. Observation shows that among the first-level indicators, the weights of C training learning, D training behavior, and E training results are relatively high, respectively 0.242, 0.230, and 0.201, which are important indicators affecting the effect of teachers' information training.

B. Regression analysis for teacher information literacy training

The regression analysis model constructed in this paper was used to analyze the 11 secondary indicator influencing factors of information literacy training for finance and economics teachers in higher vocational colleges and universities. Test the impact of each teacher training factor, that is, whether the regression coefficient of each dependent variable is valid and whether each influencing factor has a significant impact. Regression coefficients were t-tested and the results of the regression analysis of teachers' information literacy are shown in Table 4. Among them, the impact coefficients of training courses and training design are the highest, which are 3.45 and 3.44 respectively, indicating that the planning and design of training as well as the quality of training courses have a greater impact on the training effect in the process of training teachers' information literacy. And through the t-test on the significance of the regression coefficient of each indicator, the accompanying probability value of the t-value is less than 0.02, which can indicate that each independent variable indicates that it has a significant effect on the dependent variable, and the secondary indicators have a great impact on the effectiveness of the training of teachers' information literacy.

C. Empirical analysis of training effect based on fuzzy synthesis

In this section, the information literacy training for finance and economics teachers proposed in this paper is implemented in Higher Education Institution H as an example, and the effect of this teacher information literacy training is analyzed through the fuzzy comprehensive evaluation method. Most of the survey respondents are from teachers and administrators in School H. Through the calculation of the rubric, the final comprehensive judgment results can be obtained, and the results are divided into grades, very compliant, relatively compliant, compliant, relatively non-compliant, and very non-compliant are 95, 85, 70, 60, and 50 respectively. After the survey of 585 teachers who have participated in the information literacy training for finance and economics teachers, the comprehensive evaluation score of the training effect can be obtained, and

Primary indicator	Mean	standard deviation	Variable coefficient
A Training response	4.742	0.425	0.09251
B Training needs	4.740	0.440	0.09672
C Training learning	4.575	0.495	0.10235
D Training behavior	4.486	0.516	0.12254
E Training results	4.689	0.635	0.12975

Table 1: Primary index screening data

Secondary indicator	Mean	standard deviation	Variable coefficient
A1 Access foundation	4.868	0.455	0.10585
A2 Training conditions	4.781	0.481	0.11465
B1 Teacher training desire	4.651	0.453	0.09655
B2 Training requirements	4.760	0.342	0.11878
C1 Training design	4.999	0.258	0.06340
C2 Training course	4.912	0.333	0.08048
C3 Faculty qualification	4.912	0.333	0.08048
D1 Training quality management	4.564	0.417	0.10602
D2 External construction	4.259	0.457	0.12402
E1 Overall ability of students	4.738	0.491	0.11797
E2 Student feedback	4.955	0.324	0.07278

Table 2: Secondary index screening data

Primary indicator	Weight	Secondary indicator	Weight	Weighted value
A Training response	0.173	A1 Access foundation	0.531	0.088
		A2 Training conditions	0.469	0.085
B Training needs	0.154	B1 Teacher training desire	0.450	0.063
		B2 Training requirements	0.550	0.091
C Training learning	0.242	C1 Training design	0.261	0.071
		C2 Training course	0.394	0.098
		C3 Faculty qualification	0.345	0.073
D Training behavior	0.230	D1 Training quality management	0.588	0.125
		D2 External construction	0.412	0.105
E Training results	0.201	E1 Overall ability of students	0.623	0.118
		E2 Student feedback	0.377	0.083

Table 3: Information literacy training evaluation indicators and weights

Secondary indicator	Coefficient value	Adjoint probability	Influence coefficient ranking
A1 Access foundation	2.34	0.010	9
A2 Training conditions	3.36	0.015	4
B1 Teacher training desire	2.22	0.005	10
B2 Training requirements	2.15	0.006	11
C1 Training design	3.44	0.014	2
C2 Training course	3.45	0.014	1
C3 Faculty qualification	3.37	0.017	3
D1 Training quality management	3.12	0.012	6
D2 External construction	3.05	0.011	7
E1 Overall ability of students	3.31	0.016	5
E2 Student feedback	2.98	0.009	8

Table 4: The result of the regression analysis of teacher information literacy

the score of the information literacy training effect for finance and economics teachers is shown in Table 5. According to the comprehensive evaluation score of the training effect of information literacy teachers, it can be found that for the five dimensions of A training reaction, B training needs, C training learning, D training behavior and E training results, the scores are 88.28, 89.06, 90.23, 88.47 and 88.32 respectively, which are all higher than 85 points. This indicates that the content and methods of the teachers' training in participating in the information literacy training proposed in this paper have achieved certain results, which proves the effectiveness and feasibility of the information literacy training model for

finance and economics teachers in this paper, and meets the training needs of teachers' information literacy.

V. Conclusion

This paper is oriented to the training of information literacy of finance and economics teachers in higher vocational colleges and universities, designing the information literacy training model for teachers based on task and project learning, and empirically testing the model by constructing the training effect evaluation index system combined with fuzzy comprehensive evaluation and regression analysis.

- 1) In the construction of the training effect index system,

Primary indicator	Very inconsistent	Discrepancy	Accord with	Match with	Very fit	Score	Grade
A Training response	0.0224	0.0409	0.3071	0.318	0.2737	88.28	Excellent
B Training needs	0.0639	0.0413	0.304	0.3756	0.2609	89.06	Excellent
C Training learning	0.0232	0.0303	0.3181	0.3730	0.2989	90.23	Excellent
D Training behavior	0.0275	0.0169	0.3181	0.3780	0.3065	88.47	Excellent
E Training results	0.0246	0.0272	0.0578	0.3252	0.3163	88.32	Excellent

Table 5: Teacher information literacy training effect score

the average value of the five first-level indicators is between 4.575 and 4.742, and the average value of the second-level indicators is between 4.259 and 4.999. And the standard deviation is less than 1, and the coefficient of variation is less than 0.015. Among them, the weights of the first-level indicators C Training Learning, D Training Behavior, and E Training Outcome are relatively high, which are 0.242, 0.230, and 0.201, respectively, which indicates that these three indicators are important factors affecting the evaluation of teachers' information training, and also proves the scientific nature of the evaluation system based on teachers' information literacy training in this paper.

- 2) The influence coefficients of training courses and training design are the highest, 3.45 and 3.44 respectively, which have the most important influence on the training effect. And the concomitant probability of t-value of all indicators is less than 0.02, which further indicates that the indicators constructed in this paper play a crucial role in the effectiveness of teachers' information literacy training.
- 3) The scores of the effectiveness of teachers' information literacy training in the five dimensions of A training reaction, B training needs, C training learning, D training behavior and E training results in this paper are 88.28, 89.06, 90.23, 88.47 and 88.32, respectively, which are all higher than 85 and belong to the excellent level. The effect of the training model in this paper has an excellent performance, which can effectively promote the improvement of teachers' information literacy and meet the training needs of teachers' information literacy.

We should use artificial intelligence to create intelligent teaching environment, introduce artificial intelligence to support teaching reflect, and improve the information literacy of teachers in rural villages based on artificial intelligence technology, and need to establish and improve the evaluation of teachers' information ability, ensure that teachers can use the evaluation of teachers' information ability, ensure that teachers can use all kinds of information technology, and teach the information literacy to students.

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References

- [1] Zhang, D. (2022). Enterprise financial management control system considering virtual realization technology combined with comprehensive budget management. *Mobile Information Systems*, 2022(1), 8578817.
- [2] Elliott, R., Kopasker, D., & Skåtun, D. (2021). Public-sector resource allocation since the financial crisis. *International Journal of Manpower*, 42(4), 521-536.
- [3] Ahn, P. D., & Jacobs, K. (2019). Beyond the accounting profession. *Accounting Auditing & Accountability Journal*, 32(1), 101-132.
- [4] Brito, R. M., Rodríguez, C., & Aparicio, J. L. (2018). Sustainability in teaching: An evaluation of university teachers and students. *Sustainability*, 10(2), 439.
- [5] Bastian, K. C., & Marks, J. T. (2017). Connecting teacher preparation to teacher induction: Outcomes for beginning teachers in a university-based support program in low-performing schools. *American Educational Research Journal*, 54(2), 360-394.
- [6] Guo, Y., Zhu, Y., & Zhang, L. (2019). Effect of core self-evaluations on research performance among Chinese university teachers. *Current Psychology*, 38, 1253-1257.
- [7] Allgood, S., Hoyt, G., & McGoldrick, K. (2018). Teacher training for PhD students and new faculty in economics. *The Journal of Economic Education*, 49(2), 209-219.
- [8] Hirschleifer, D. (2020). Presidential address: Social transmission bias in economics and finance. *The Journal of Finance*, 75(4), 1779-1831.
- [9] West, R., & Ramcharan, P. (2019). The emerging role of Financial Counselors in supporting Older Persons in financial hardship and with management of Consumer-directed Care packages within Australia. *Australian Journal of Social Issues*, 54(1), 32-51.
- [10] Mitchell, G. E., & Calabrese, T. D. (2019). Proverbs of nonprofit financial management. *The American Review of Public Administration*, 49(6), 649-661.
- [11] Vergara, M., & Saldivia, B. E. S. (2019). Reproduction of the innovation environment in the classroom as a basis for a sustainable university education. *RISTI - Revista Iberica de Sistemas e Tecnologias de Informacao*, 1(20), 710-719.
- [12] Shen, H., & Chen, X. (2022). Virtual reality-based internet+ smart classroom. *Journal of Internet Technology*, 23(2), 335-344.
- [13] Chauhan, J., & Goswami, P. (2020). An integrated metaheuristic technique based energy aware clustering protocol for Internet of Things based smart classroom. *Modern Physics Letters B*, 34(22), 2050360.
- [14] Aristei, D., & Gallo, M. (2021). Financial knowledge, confidence, and sustainable financial behavior. *Sustainability*, 13(19), 10926.
- [15] Gill, A., & Bhattacharya, R. (2019). The effects of a financial literacy intervention on the financial and economic knowledge of high school students. *The Journal of Economic Education*, 50(3), 215-229.
- [16] Janiszewski, C., Labroo, A. A., & Rucker, D. D. (2016). A tutorial in consumer research: knowledge creation and knowledge appreciation in deductive-conceptual consumer research. *Journal of Consumer Research*, 43(2), 200-209.
- [17] Knight, D. S. (2020). Accounting for teacher labor markets and student segregation in analyses of teacher quality gaps. *Educational Researcher*, 49(6), 454-458.
- [18] Waltner, E. M., Rieß, W., & Brock, A. (2018). Development of an ESD indicator for teacher training and the national monitoring for ESD implementation in Germany. *Sustainability*, 10(7), 2508.

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