

Research on the Design of Academic Evaluation Standards of E-commerce Professional Group in Secondary Vocational Schools based on the Integration of Post-course Competition Certificate: Taking Short Video Courses as an Example

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Abstract: Given the subjective and one-sided problems existing in the current evaluation system of e-commerce courses in secondary vocational schools, this paper puts forward the implementation path of “four in one.” Through the integration of big data technology, knowledge graph technology and the PGSD ability analysis model, the evaluation graph is constructed, aiming at achieving comprehensiveness, adaptability, professionalism, scientific and objectivity of the evaluation. The evaluation graph includes a three-tier structure of evaluation system, knowledge domain and skill dimension, and systematically distributes weights to realize the development of multi-dimensional evaluation and personalized learning path.

Keywords: Academic evaluation; Integration of post; Course; Competition and certificate; Evaluation graph; Personalized learning path; Educational evaluation reform

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1. Research background and questions raised

Educational evaluation is related to the direction of education development, is the baton of running a school, and is also a key link to educational system reform. The important discussion on State education Evaluation in 2020 is the fundamental guiding ideology and the Overall Plan for Deepening the Reform of Education Evaluation in the New Era has been issued ^[1]. According to the plan, teachers should “adhere to scientific and effective evaluation, strengthen process evaluation, explore value-added evaluation, improve comprehensive evaluation, and make full use of information technology to make educational evaluation more scientific,

professional and objective.” Teachers put forward for vocational education “German and technical training, integration of production and education, school-enterprise cooperation, the combination of education and training,” “expand the participation of industry enterprises in the evaluation, guide the cultivation of high-quality workers and talents” and other requirements. However, at present, some new courses in the e-commerce group of secondary vocational schools still difficult to meet the standards in the “Plan.” Taking the courses related to “Short Video” as an example, in the actual education and teaching activities, students’ evaluation has encountered the following problems.

1.1. The evaluation is too subjective and one-sided to meet the scientific and comprehensive development

- (1) It is necessary to increase the objectivity of evaluation and transform the evaluation criteria of short video courses from subjective grades to explicit and quantifiable standards;
- (2) The evaluation should take into account the comprehensive development of students’ science.
- (3) The evaluation should also take into account the ability goal, ideological and political goal and quality goal, and combine the cultivation of moral and technical skills and put morals first, to realize the all-round development of students’ moral, intellectual, physical, American and labor.

1.2. Evaluation is out of touch with the market, and it is impossible to cultivate talents suitable for the market

Short video marketing spans many disciplines such as management, marketing, journalism and communication, art and e-commerce, and the knowledge points cover many major modules such as screenwriting, director, performance, editing, post-production, photography, communication, marketing, operation and data analysis. The actual combat scenes of each skill point are complex and changeable, and the content is iterated and updated quickly. A single-teacher evaluation will lead to a disconnect between the evaluation and the market, so it is necessary to expand the participation of industry enterprises in the evaluation and guide the training of high-quality laborers and technical talents.

1.3. Evaluation focuses on horizontal comparison, and there is no scientific and effective value-added evaluation method

Due to the development of the information society, the ways for students to obtain learning materials have become diversified, and the basic gap between students has become larger and larger, so scientific and effective value-added evaluation methods have become more and more important. This topic attempts to explore value-added evaluation, excavate students’ weak points of knowledge, and finally realize personalized reinforcement learning.

1.4. Evaluation is not timely and unclear, which affects students’ learning interest and learning efficiency

- (1) Improve the enthusiasm of short video courses: Reduce subjective evaluation and improve the objectivity of evaluation, provide timely feedback, strengthen process evaluation and students’ agile iteration of works.
- (2) Improve learning efficiency: Formulate clear and detailed evaluation criteria to avoid unclear homework evaluation and students’ improvement path.

2. The implementation path of “four in one”

By integrating the multiple requirements of post, course, competition and certification (post-course competition certificate) ^[2,3], this research will use big data technology, knowledge graph construction technology and PGSD (Post-course–Skill–Development) ability analysis model to achieve the following goals ^[4,5]:

- (1) Comprehensiveness of academic evaluation: Although the existing research solves the traditional problem of academic evaluation by introducing new technologies, the one-sidedness problem of academic evaluation has not been fundamentally solved. This study will introduce the concept of “integration of post-course competition certificate,” and integrate the requirements of post-competition criteria and the requirements of the “1+X” certificate system into the academic evaluation, to achieve comprehensiveness and scientific evaluation ^[6,7].
- (2) The adaptability of academic evaluation: The current research on academic evaluation needs to pay more attention to the social and market demand, that is, to clarify the specific needs of society and enterprises for talents. This study is based on the PGSD ability analysis model, combined with big data to investigate the market demand for short video marketing positions and integrate these needs into the academic evaluation to improve the adaptability and practicality of the evaluation.
- (3) Professional, scientific and objective academic evaluation: Big data technology is used to collect the recruitment requirements of short video positions and integrate them into academic evaluation to improve the professionalism and objectivity of evaluation. At the same time, with the help of knowledge graph technology, the skill evaluation graph of this course is designed to realize personalized intensive learning and provide clear improvement paths for students.

Through the reform of academic evaluation, this study aims to promote the process of teaching reform. As the guidance of educational practice, educational evaluation should improve the course content and innovate the teaching method through the reform of the academic evaluation system, to stimulate the students’ learning enthusiasm and improve the learning efficiency.

3. The implementation steps

The implementation steps can be divided into the following six steps:

- (1) Research foundation construction: Through in-depth literature research and systematic collection of information related to positions, courses, competitions and certifications, to establish the theoretical foundation of the research.
- (2) Data collection and analysis: Advanced web crawler technology is used to collect the job demands, job categories and core job responsibilities of the short video industry from mainstream recruitment platforms, to lay solid data support for subsequent research.
- (3) Information integration and classification: According to PGSD (job-course-Skills-development) analysis framework, the collected data are carefully sorted and classified to form a Comprehensive Analysis Table of Career Activities and work Tasks in the short video Industry, which is further improved from the multi-dimensional perspective of “job-course-competition-certification.”
- (4) Expert review and optimization: Organize an interdisciplinary fishbone schema ability analysis seminar, invite industry leaders, education experts and senior teachers to conduct in-depth discussion and careful

evaluation of the “Analysis Table,” to ensure that it not only meets the actual needs of the market and enterprises, but also takes into account the acceptance and interest preferences of students.

- (5) Ability framework construction and quantitative evaluation: The “Analysis Table” is further detailed, divided into professional ability, general ability, social ability and development ability and other key areas, and according to the importance of “post-course–competition–certification–thinking” for quantitative analysis, the construction of short video industry PGSD ability analysis framework.
- (6) Evaluation system innovation and personalized learning path development: The evaluation graph is innovatively constructed to achieve a scientific and objective assessment of academic achievement, and based on this, a personalized learning path is developed, which is not only the innovation point of this research but also its core value.

4. The evaluation graph

Knowledge graph is a technique to describe various entities, concepts, and their relationships in the objective world in the form of a graph, which is widely used in intelligent search, automatic question and answer, decision support and other fields ^[8]. The study introduces the knowledge graph technology into educational evaluation, displays the evaluation system ^[10] of short video courses in the form of a graph ^[9] and calculates the level of students through the knowledge graph technology, to achieve comprehensive evaluation, value-added evaluation and process evaluation, and ensure the scientific, professional and objective evaluation. The above technical method is named the evaluation graph. The following will introduce the structure of the evaluation graph in detail ^[11,12].

4.1. Level 1: Evaluation system

The foundation of the evaluation graph is to carry out an innovative transformation of the evaluation system. To ensure the objectivity of the evaluation, the evaluation changes from a single dimension to a diversified evaluation. In the evaluation system, the three-dimensional evaluation of students, teachers and industry should be included. In the industry evaluation, industry experts and industry AI tools should be included ^[13].

Take “Short Video” as an example. Bytedance’s massive creative tool provides pre-investment analysis and pre-review tools for short videos. The pre-review tool uses professional risk assessment tools to conduct a comprehensive review of the material to prevent potential risks and ensure content compliance. The pre-investment analysis tool makes an in-depth analysis of video content from multiple dimensions, such as marketing selling points, video plots and aesthetic labels, to ensure the fit of its creativity with market trends.

Through the establishment of the evaluation system, firstly, the evaluation process can be optimized, the subjectivity can be reduced, and the objectivity and accuracy of evaluation can be improved; Second, it has an immediate feedback mechanism to strengthen the evaluation process, to promote the rapid iteration and continuous optimization of students’ works. This is to improve the quality and innovation of the works, to achieve the maximum learning results.

4.2. Level 2: Knowledge domain

In the framework of this study, the knowledge domain is defined as a set of related skill points that are mapped to specific occupational positions. Through the corresponding relationship between knowledge domain and position, this study aims to deepen vocational school students’ understanding of vocational positions and use

the evaluation results of each node in the evaluation graph to directly reflect students' adaptability to different positions. This will help students to identify their areas of strength and provide guidance for their choice of career paths.

4.3. Level 3: Skill dimension

The skill dimension is the further elaboration of the knowledge field. Through the comprehensive consideration of post-demand analysis, course content, competition standards and certification system, the PGSD (Post-course–Skill–Development) ability analysis model is constructed. This study further organized an interdisciplinary fishbone schema competency analysis seminar, inviting industry experts, education scholars and senior teachers to participate. Through in-depth discussion and careful evaluation of the PGSD Ability Analysis Table, we ensure that the model not only meets the actual needs of the market and enterprises but also takes into account students' learning acceptance and interest preferences, to realize the effective docking of educational content and career needs.

5. Calculation of evaluation results and realization of personalized learning path

5.1. Calculation of evaluation results

In the process of constructing the evaluation graph, this study adopts a systematic method to assign weights^[14]. The weights are assigned based on the relative importance of knowledge as well as the teaching progress of the course, ensuring that each skill point can receive appropriate attention. By adding the weights of each skill point, the comprehensive weight of the knowledge area is calculated. In this evaluation system, the total weight of skill level and knowledge level is set to 100 to ensure the balance and consistency of the evaluation.

In the assessment of short video assignments, the score of a single skill point may not fully reflect a student's comprehensive ability. Therefore, this study proposes a multidimensional evaluation method to include multiple skill points involved in the assignment into the scope of assessment. For example, short video assignments usually cover multiple aspects such as content conception, shooting and editing. By combining the scores of these skill points, students' academic performance can be evaluated more comprehensively, thus ensuring the completeness and accuracy of the evaluation.

5.2. The realization of the personalized learning path

The evaluation graph, not only makes the evaluation more scientific and objective but also realizes the personalized learning path^[15]:

- (1) Light up the skill points and show the learning achievements: Every time the students finish the homework, the evaluation graph will be updated according to the homework results to calculate the weight of each knowledge point and the knowledge points that have been mastered will be marked with different colors. This allows students to gradually light up the skill points during the learning journey and identify the new knowledge points they have mastered compared with the previous homework (value-added evaluation), to obtain a sense of achievement in learning and realize a personalized learning path with their reference.
- (2) Deepening process evaluation: Students are encouraged to actively use a variety of skill points in the homework. According to the course progress, the weight of each skill point is assigned and scored, to achieve process evaluation, aiming at improving learning efficiency and promoting the in-depth

understanding and application of knowledge.

- (3) Differentiated incentives and support: Through the evaluation graph, every progress can be manifested for students with a relatively weak foundation, thus providing positive incentives to enhance their learning confidence and motivation. Students with a solid foundation help them find and make up for the blind spots in knowledge, to ensure the comprehensiveness and balance of the learning process.

6. Conclusion

In future studies, this research plans to further improve the evaluation graph and integrate deep learning technology into the weight design of the evaluation graph. By introducing advanced algorithms to optimize weight distribution, the accuracy and reliability of evaluation are improved. Meanwhile, in the video scoring section, this research will explore the introduction of more AI scoring dimensions to achieve a more comprehensive and objective evaluation.

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