

Construct a test question bank based on post competency to optimize talent evaluation criteria and improve the quality of personnel training

Min Li

Guangxi Electrical Polytechnic Institute, Nanning, Guangxi 530000

Abstract: China's economy is in a new era of transformation from high-speed development to high-quality development, and the demand for high-quality skilled talents is increasing. However, the reality is that the talent quality of vocational college graduates does not match the employment needs of enterprises well enough, so vocational colleges cannot provide strong talent support for economic transformation. Based on this, the paper built a test question bank based on post competency to guide teachers to pay attention to the coordinated development of students' knowledge, skill and potential in the teaching process to improve students' comprehensive ability and post competency and the quality of talent training, and to fit the enterprise employment needs. So as to provide valuable reference for vocational colleges to optimize talent evaluation criteria and improve talent training level.

Key words: post competency; test question bank; talent evaluation

Vocational colleges are responsible for delivering high-quality skilled talents to the country. Vocational education needs a perfect talent training system and a scientific, dynamic, diverse and systematic talent evaluation system which conducts an in-depth and multi-dimensional evaluation of the talents cultivated by it. At present, many vocational colleges compose test papers by extracting questions from the existing test question bank, and complete the talent evaluation work based on the students' test or assessment results.

1. The advantages and disadvantages of the test question bank

With the advent of computers, especially the popularization of the Internet, on the basis of traditional examinations, a test question bank system emerged, and was rapidly developed and widely used. The advantages of the test question bank is fully leveraged: (1) Separation of teaching and testing. Effectively changed the situation that teachers teach for the test and students' study for the test; (2) Improvement of the reliability of the test. Uniformly select questions to form an exam paper which can effectively reduce the possibility of leaking questions and the probability of students betting on the questions, and reflect the quality of teaching and learning to the maximum extent; (3) Improve efficiency. For teachers, once the question bank is established, it only needs to be maintained, but doesn't need to do a lot of repetitive work. It can be used and shared for a long time. Teachers only need to complete the grading of subjective questions, which improves teachers' working efficiency. For students, they can learn the acknowledge from the test question bank at any time, improve their learning efficiency and enthusiasm. Therefore, the test question bank has been widely used in vocational colleges and played an important role in talent evaluation.

However, there are still many deficiencies in the construction and the use of the test question bank. (1) The compilation of the existing test question bank is generally carried out by professional teachers organized by the professional person in charge. But the distribution of test questions is not reasonable. The subjectivity of compilation is strong and the employment-oriented indicators are not fully reflected. So the test questions bank is somewhat one-side because it is compiled by the teachers based on their own understanding. ; (2) When using the test question bank to evaluate students, only their skills and knowledge are assessed, but students are not comprehensively and multi-dimensionally assessed and evaluated, especially for assessment of potential abilities such as executive ability, thinking ability, teamwork ability, and so on ; (3) When compiling the test question bank, it is not fully considered in the matching degree between the job demand of the employer and the job competency of the student.

2. Based on the job competency, build a test question bank.

2.1 Post competency

Post competency was formally proposed by Harvard University professor David C. McClelland in 1973, and it is used to distinguish the deep-seated characteristics of individuals who are outstanding and ordinary on the job. After research and improvement by many scholars, post competency is defined as "personal characteristics that can distinguish excellent performers from mediocre performers and can be measured in a credible way". Multi-dimensional evaluation of post practitioners is achieved by building a post competency model, which mainly includes personal knowledge, skill and other display capabilities, and potential capabilities such as thinking ability, execution ability, and teamwork ability and so on.

2.2 Build a job competency model

Building a job competency model is to list the work content involved and the corresponding capabilities on the basis of fully understanding the responsibilities and ability requirements of a certain job, and to match the necessary knowledge, skills, and potential.

Listing the work content involved and the corresponding capabilities on the basis of fully understanding the responsibilities and ability requirements of a certain job is used to build a post competency model, which matches the necessary knowledge, skill and potential

Taking a hydro turbine repairman in a power plant as an example to build a post competency evaluation model. As shown in Figure 1.

Structure	Module	Element name	Content	Grade requirements	Evaluation method
Knowledge	Basic knowledge	Mechanical Drawing	1, learn....; 2, familiar...; 3, master....;	☆	written examination
	
	Professional knowledge	...	...	...	...
Skill	Basic skills	...	...	...	...
	Professional skill	...	...	...	...
Potential	Professional ethics	...	...	...	...
	Ego traits	...	...	...	...

Figure 1 Construct the evaluation model of post competence

The post competency is evaluated from the three dimensions including knowledge, skills, and potential. When the evaluation of the three dimensions of the participants is all qualified, it is regarded as his corresponding position and corresponding level meet the need of the post competency.

2.3 Determine the basis for compiling the test question bank

Through the comprehensive analysis of the constructed post competency model, we can grasp the knowledge, ability and potential that an excellent graduate or practitioner should possess. Then it will be refined and decomposed into specific courses to clarify the training objectives and evaluation indicators of specific courses, so as to build the basis for the compilation of professional test question banks.

Taking the mechanical drawing course as an example, the course evaluation index based on post ability is compiled. As shown in Figure 2.

Level1 indicators	Level 2 indicators	Level 3 indicators
Knowledge	Basic rules of mechanical drawing	1.Learn.....; 2.Familiar.....; 3. Master...

Skill	...	...
Potential	...	...

Figure 2 Curriculum Evaluation Index

Regarding the weight of the evaluation index, it can be obtained by expert survey method. Experts include enterprise experts, key teachers of the school, industry experts, etc., and the reasonable weight of the index can be determined through a certain amount of samples.

Professional teachers organize enterprise experts, teachers of the same major in the school, industry experts to form an editorial committee to build the test question bank. In order to make the distribution of test questions, test reliability and validity more reasonable and scientific.

2.4 Compilation of test question bank

1. Compilation ideas As shown in Figure 3.

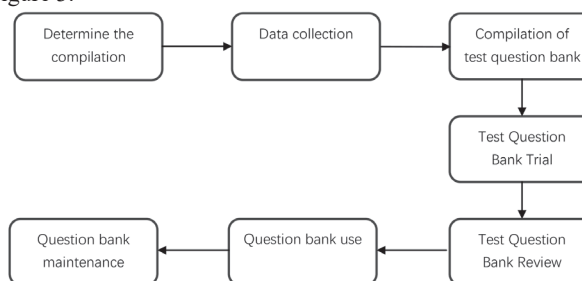


Figure 3 Compilation ideas

2. Compilation process

(1) Firstly, the editorial committee determines the compilation principles of the test question bank. Including the assessment ratio and quantity of the three indicators of knowledge, skills and potential in the question bank, the classification of question types, the difficulty of test questions, the validity and reliability of test questions, etc.

(2) Data collection. Including personnel training programs, teaching materials, employment needs of enterprises, basic situation of

students, etc.;

(3) Compilation of test question bank. The editorial committee reasonably divide the division of labor between each other, compile test questions and form a test question bank based on the established test question bank compilation principles.

(4) Test question bank trial. Organize students to try out the test question bank, collect and analyze the trial results, and optimize and adjust the test question bank in a targeted manner.

(5) Auditing the test question bank. After the internal review by the editorial committee is completed, it will be reported to the school management department for review.

(6) Use of test question bank. Class teachers use the computer to form a paper from the test question bank and complete relevant examinations and assessments.

(7) Maintenance of test question bank. Regularly maintain and upgrade the test question bank, including questions replacement and revision.

3. Optimize talent evaluation criteria, improve the quality of talent training, and promote student career development

3.1 Optimize talent evaluation criteria

The current talent evaluation mechanism of vocational colleges mainly examines the knowledge and skills of students, but does not involve invisible abilities such as teamwork and execution, nor does it fully consider the comprehensive abilities of students for future employment. While in school, teachers should take the initiative to instill the concept of post competency into actual teaching and talent evaluation criteria, and improve students' post competency by optimizing talent evaluation criteria. So as to realize the school's fundamental goal of delivering high-quality skilled talents to the society.

3.2 Improve the quality of personnel training

The test question bank is built on the basis of post competency. In the process of teaching and assessment, teachers consciously guide students to change from one-sided pursuit of knowledge and skills to improving comprehensive ability. So as to adapt to post needs and improve post competency and improve personnel training quality.

3.3 Promote student career development and school development

Since the students have undergone post competency training during their schooling, they can quickly adapt to the job after entering the unit and pass the probationary period smoothly, and the post competency will run through the whole process of the students' career, which will provide a strong guarantee for their career development. At the same time, due to the strong comprehensive ability of students, it can improve the employment satisfaction of employers which willingness will be increased to recruit graduates from the school again. It is conducive to the development of the school and forms a healthy development.

4. Conclusion

All in all, talent cultivation is a systematic project, which requires the mutual promotion of teaching, learning and evaluation. The test question bank based on post competency will guide teachers to pay more attention to students' collaborative learning of knowledge, skills and potential in the teaching process, improve students' comprehensive ability and post competency, promote and improve talent evaluation criteria, and improve the matching degree of the employment needs of enterprises and talents. It will ultimately achieve the purpose of delivering high-quality skilled talents for the country's economic transformation.

References

- [1] State Council. National Vocational Education Reform Implementation Plan [Z]. 2019-02-13
- [2] Chao Ru, Suli Lu. Discussion on Teaching Innovation of Human Anatomy Course in Higher Vocational Colleges from the Perspective of Post Competence [J]. China Economist, 2022 (04): 185-186
- [3] Xingui Zhai, Yuqin Chen. Strengthening the Construction of Test Question Bank and Promoting the Reform of Education and Teaching in Higher Vocational Colleges [J]. Human Resource Management, 2010 (07): 266
- [4] Liu Yu, Xiuqun Ai, Huang Chao, Discussion on the Competency Evaluation Index of Higher Vocational Engineering Students Based on Enterprise Needs [J], Higher Education and Talent Research, 2022 (05): 10-12
- [5] Liwen Huang, Research on Quality Evaluation of Innovative Talents Training in Higher Vocational Schools under the Background of "Double High Construction" [J], Journal of Xingtai Polytechnic College | J Xingtai Polytechnic Coll, 2022 (08): 41-44

About the author: Li Min (1983), male, from Dezhou, Shandong, master, senior engineer, Guangxi Electrical Polytechnic Institute, research direction: virtual simulation technology, vocational education.

Project Fund: The Ministry of Education's Higher Education Scientific Research and Development Center's special project "Innovative Application of Virtual Simulation Technology in Vocational Education Teaching" "Research on the Reconstruction of the Training System of Power Technology Professional Groups Based on Virtual Simulation Technology" (Project Number: ZJXF2022186)

The 2023 education and teaching reform project of Guangxi Electrical Polytechnic Institute, "Optimizing talent evaluation standards by constructing examination question bank based on post competence"(project number: 2023JGY12, moderator: Li Min)