Skills competitions are driving the quality improvement and upgrading of practical training curricula in vocational colleges

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Abstract: According to the occupational competency standards, skill competitions have continuously increased the demand for practical training in vocational institutions through the spread of evaluations, training and teaching. Therefore, the curriculum has had to change from fragmented project-based training to systematic competency development. Analyze the relationship between competitions and practical training curricula, how they are transmitted, what obstacles exist, and how to overcome them. It is proposed that competition standards can provide a reference for the content of the curriculum; the speed of training can promote reforms in teaching organisation; and the demand for talent can facilitate the integration of industry-education resources. To address the problems mentioned above, such as poor integration of curriculum and teaching, lack of materials, and a weak training-evaluation system, it is necessary to improve the quality of practical training by revising curriculum projects, modifying teaching methods and strengthening evaluation safeguards. Thus, the pressure of competition will be transformed into a positive internal motivation for curriculum construction and thereby help to raise the overall level of technical and practical talents.

Keywords: skills competitions; practical training courses; quality improvement and upgrading; curriculum reform; vocational education

0. Introduction

The quality of the practical training courses organised by vocational colleges will directly affect the level of technical and skilled personnel produced. Skills competitions have now become a regular type of assessment in vocational education and have begun to affect the organization of these courses in terms of standards, timing and resource allocation. The two are not separate institutions; rather, the evaluation goals of the competitions are passed down through the teaching line to influence course content, teaching methods and quality evaluation, thus forming a continuous source of improvement pressure. Given this relationship/this transmission relationship, we can better grasp the present reasons for reform in practical training curricula. The four contents of this paper are: internal links, transmission paths, actual problems, and implementation plans; it will show that the pressure from competitions can be used to improve and raise the standard of courses.

1. The Intrinsic Relationship Between Skills Competitions and Practical Training Courses

1.1 The competition content and practical training objectives both originate from the occupational competency standards.

The development of competition questions systematically derives the competency requirements for various positions in society. Occupational competency standards provide the basis for designing competition questions and are also the general goals of the practical training courses. As all of them have the same competency requirements, the operating standards of the two are close to each other, and their focus on core competencies is also the same; thus, competition can be used to determine whether a course deviates from the demands of the relevant position. As they have the same origin, competitions are in line with the course´s competency focus; only when

the practical training is based on this same competency system can it form a closed loop with the competitions for mutual validation.

1.2 Competition standards provide an actionable reference framework for practical training courses.

Practical training courses should specify what will be taught and at what level of proficiency the training will be conducted, and skills competitions can also set clear scoring criteria and technical specifications to break down broad occupational competencies into observable and assessable operational steps, quality indicators and time requirements. Therefore, the aim of building a good team has been turned into actual training content and performance appraisals; the type of learning is no longer random experience collection but an ordered system that collects evidence; and certain standards have been set for the range and depth of applied knowledge, as well as a unified method for quality supervision.

1.3 The training platforms for competition-based training and practical training instruction should be seamlessly integrated.

Most of the operating platforms, equipment workstations and process flow for competition preparation are the same as those in the regular practical training. Competition activities are based on the actual production conditions, and the project-based organisation in practical training also replicates these circumstances; thus, both are the same training ground and are not different. Rather, they only differ in the strength of the training applied to the same operating basis and have the same prerequisites for change [1]. Competition training has increased the demands for operational details and process completeness; therefore, the training methods and quality control measures developed for it can be directly used in routine instruction to add the standardised requirements of high-level competition preparation to practical training.

2. Skill Competitions Driving the Implementation Mechanism for Practical Training Courses

2.1 Evaluation criteria drive the updating of course content

Competition scores indicate the current operational needs of certain positions and the general conditions in the industry; the resulting direction of evaluation is communicated to the curriculum designers through participation in competitions, observation of performances and feedback on the results. When there is a gap between the competition standards and the current content of the curriculum, instructors will proactively modify the training modules, add new processes, update operational guidelines, etc., to meet the competency requirements of the competition in the curriculum. Therefore, the evaluation standards will motivate curriculum reform, help practical training courses break free from the inertia of old projects, and provide continuous improvement impetus in light of changes in the industry; this kind of external pressure is more specific and verifiable than administrative requirements. Once the new materials and methods judged good in the competitions are added to the training plan, the curriculum will better meet the needs of the industry, and the gap between what the curriculum offers and what the industry demands will continue to shrink gradually.

2.2 Training Rhythm Drives Transformation in Teaching Organization

Competitive training needs to be carried out in its entirety within a short period of time, and thus emphasizes the continuity of the process, time management and on-the-spot modification; therefore, it cannot be conducted in the old model of step-by-step teaching and slow-paced training. With the acceleration of life, instruction should be made more efficient; therefore, redundant explanations need to be cut, training must be more comprehensive and systematic, and phased evaluations should be introduced to continuously monitor students´ progress in integrated learning. Therefore, the speed of training has led to changes in the organisation of teaching, and teachers have been forced to rearrange class time and incorporate training elements to gradually

match the pace of teaching with the speed of actual work. As students finish several operating units in continuous situations, they will be able to coordinate all these parts and ensure the quality of their work; thus, the purpose of the teaching organisation will be achieved.

2.3 Talent demand is driving the integration of industry-education resources

Competition project design follows the development of industrial technology, so it has higher demands on equipment, materials and supervising instructors; thus, institutions need to determine whether their own practical training facilities meet the actual needs of the industry. To meet the dual needs of competition in training and employment, many institutions have begun to integrate corporate resources, strengthen the equipment platform, invite excellent industry professionals to teach the students, and promote collaboration between industry and education in developing curricula together. Therefore, with the increase in demand for talent, practical training resources are gradually moving towards real-world production scenarios, and curriculum construction has also expanded beyond the school premises to cooperate with enterprises and improve the overall quality of training resources [2]. When enterprises are involved in curriculum design and provide relevant contexts and authentic tasks, there will be a higher degree of correspondence between the content of practical training and actual production; thus, students can experience a closer approximation of the operating environment at work in the school and gradually reduce the gap between industry and education through joint development of resources.

3. Current Practical Training Curricula Face Realistic Obstacles in Dealing with Competition Pressure

3.1 Insufficient alignment between course content and competition standards

Some of the practical training courses are still based on the old way and lack the advanced techniques and all-around abilities required for the competitions. Course development frequently uses traditional textbooks and old projects, and there is no way to update them according to changes in the industry; thus, the training content and evaluation criteria are often outdated. If this disconnection continues over a long period, competition pressure will be unable to motivate the improvement of the curriculum; instead, it will increase the burden on both teachers and students, reduce competition to preparatory activities for only a few students, leave most of the curriculum untouched, and thus create a break in the content delivery chain. The root of this problem is that there is no fixed trigger for updating course content; thus, teachers tend to focus their training based on their own circumstances, and the results of competitions are not systematically incorporated into curriculum design, leading to scattered efforts at alignment.

3.2 There is a structural shortage in the supply of teaching staff and equipment

Instructors of competition training need to have all-round leadership skills and be able to respond promptly to changes in real time. However, the actual training has long been based on fixed operational demonstrations and command-style instruction; as a result, some instructors have not yet fully grasped the new processes and cannot provide comprehensive project guidance. Equipment for the competition is changing frequently, but the number of training workstations and software versions has not kept up with this, which is a serious constraint on the release of training. Both the instructors´ abilities and the equipment are lacking, so there is no basis for improving the quality of the curriculum; even if we modify the content, it is impossible to be implemented in practice. There are few occasions for instructor training and industry practice; equipment upgrades are limited by funds and procurement time, and these deficiencies have become serious problems that prevent the curriculum from meeting the demands of competition[3].

3.3 Disconnection between assessment and evaluation and competition requirements

The quality assessment of the practical training courses is based solely on the operational results and regular course grades; therefore, the dimensions of evaluation are too narrow and fail to

cover the competencies required for competitions, such as adherence to procedural standards, process control and problem-solving. The direction of the assessment does not meet the demands of competition; therefore, it is difficult to objectively reflect the efforts made by both teachers and students this weakens the foundation for continuous improvement of the course through feedback. If the evaluation mechanism does not align with competency standards, it will be impossible to determine whether the quality of education has improved or how effective the reform efforts have been; otherwise, there will be no incentive for courses to be developed. The current assessment system does not cover the standardisation of student training, their cooperative achievements and all-round abilities, etc.; thus, the evaluation results cannot be used to guide course diagnosis and a closed-loop feedback system cannot be established.

4. Practical Pathways for Enhancing the Quality and Upgrading of Practical Training Courses Driven by Skills Competitions

4.1 Reconstructing course content and project systems based on competition criteria

Based on the assessment standards for vocational skill competitions, the objectives of the curriculum training are organised systematically; item by item, the scoring criteria of the competition are broken down to extract operational specifications, technical key points, quality requirements and professional competency indicators. Based on the above, a core skills list will be established, the sequence of practical training projects will be readjusted, and cutting-edge industry processes, operation of new equipment and the latest technical specifications will be added. All curriculum reform is based on competency standards, so rather than directly taking or combining competition questions and items, a tiered project chain is constructed according to cognitive patterns and the logic of skill acquisition to ensure an orderly progression from basic individual training to modular integrated training and finally to full-process project training, going from simple to complex. Competition standards provide a continuous basis for curriculum reform; although they should meet the demands of competition assessment, the curriculum should maintain its own educational logic to avoid the utilitarian tendency of "teaching for the sake of competition" and prevent the instructional content from being solely focused on the needs of a small number of competition participants [4]. All the grades´ curriculum projects have been covered, and in addition to the general operating specifications and special skill strengthening, full-scale applications in all kinds of complex scenarios will also be provided for students´ foundation. At the same time, expansion modules for changes in industrial technology iterations will be released to modify the curriculum content dynamically; at the same time, the basic framework and core competencies will remain stable and practical; thus, both the needs of general foundational training and the high-level learning demands of top students will be met.

4.2 Using competitions to drive training and promote the renewal of teaching methods and resources

Based on the training characteristics of competition projects, which are long-term, all-encompassing and have closed-loop task management, we should reform the daily practical training system. Move away from the old way of small-unit, repetitive drills; instead, organise projects according to the actual situation of work and regularly conduct full-scale, staged and milestone-oriented tests to integrate a process-control thinking style learned in competitions into regular class teaching. At the same time, we should also promote the coordinated upgrading of faculty, training facilities and software and hardware resources; establish a dual-qualified teacher development program; have teachers actively participate in the frontline production practice of partner enterprises; and follow up on new processes and workflows in their positions to continuously improve their all-around capabilities in project guidance, fault diagnosis and solution optimisation. According to the demands of project training, institutions should reasonably arrange practical training workstations; support the updating of professional software, tools and equipment; build practical training platforms that closely resemble the actual production

environment, etc. At the same time, the teaching model and resource allocation should be adjusted to ensure that the courses have the hardware and faculty capacity to support high-intensity comprehensive training; furthermore, the process design, problem guidance and process-control experience gained in competition training should be shared with all students. Situational training is based on actual production conditions; students can operate all links in the process independently, develop countermeasures on their own, face problems, handle and debug them, carry out quality self-inspections, etc. Therefore, the role of the teacher changes from that of a one-way demonstrator and explainer to a process leader and problem-solver, and the focus of teaching shifts from knowledge transmission to the systematic cultivation of students´ engineering thinking, practical ability and problem-solving skills[5].

4.3 Enhance quality assessment and support mechanisms through competition-based lesson evaluation

Add the evaluation items of the competition scoring system to the course evaluation criteria, such as technical standards, process control, safety regulations, professional ability and output quality. Build all sorts of evaluation systems that cover the process, results and abilities; set up regular feedback channels; use the data from the above evaluation to continuously improve the course contents, project design and training methods. Institutions need to organise the distribution of high-level resources, clarify the division of responsibility and integration of competition-intensification training with regular teaching, and prevent the excessive concentration of practical training facilities, equipment and faculty resources in competition teams. This will ensure that the regular students have the same opportunity to participate in practical training conditions, and by opening up competition-derived standards, resources and teaching results to all students, the broad dissemination of competition achievements can be guaranteed. Establish evaluation and support institutions, and then continuously improve the standards of the competition under their leadership; this will continue to motivate us to enhance the course. According to the standard-led guidance of closed-loop improvement, teaching implementation and evaluation will be conducted, and based on the results, continuous optimisation of the quality of practical training courses will be carried out. Assessment should not only consider the final results in practice but also give more weight to recording the whole process of training. It will offer objective data for course diagnosis and teaching reflection; based on the evaluation results, teachers can promptly adjust the difficulty of the project, the design of tasks and other teaching contents, and students can use the score indicators to identify their own deficiencies and determine the direction for further study. Thus, a cycle of "teaching − evaluation − diagnosis − optimisation" has been formed to continuously improve the educational quality of the practical training courses.

5. epilogue

Based on the standards, rhythm and resource-driven effects of skills competitions, continuous and specific demands have been placed on improving the practical training curriculum at vocational colleges. Whether this pressure can be converted into actual improvements in quality and upgrades depends on whether the curriculum can adjust its content according to competency standards, update teaching methods, strengthen evaluation and support, etc. In fact, the link between competitions and the actual training curriculum is the integration of a competency-oriented approach in both evaluation and teaching; only when the demands of the competition can be fully reflected in the curriculum system will practical training teaching be free from the constraints of fragmented projects and narrow evaluation standards. The main way to achieve this change is to build a link based on competency standards and use the motivation of competitions as a continuous driving force for curriculum development to improve the quality of technical and skilled talents.

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