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Establishment and Practice of Teaching Quality Evaluation System in Cross Border Campus Based on "Real Problem and Real Work"

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ABSTRACT
This article aims to systematically introduce the concept of "doing real questions" into the field of teaching quality evaluation, and focus on building a "cross-border" evaluation system that matches it. This study aims to break the "island" state of universities in evaluation, by introducing multiple stakeholders such as enterprises, industries, and students to form an open and collaborative evaluation community, thereby promoting the transformation of evaluation from static knowledge measurement to dynamic capability assessment. The research has positive significance for reforming the theory of teaching evaluation in universities, and aims to solve the practical problem of the disconnect between talent cultivation and market demand, improve the quality of talent supply in universities, and provide a set of operable practical solutions.

KEYWORDS
Real questions, Real work; Cross border campus; Teaching quality evaluation; Capability oriented; Education reform

1 Introduction

At present, China's higher education is in an important stage of connotative development, and cultivating applied talents that meet the needs of the new era has become a clear direction at the national strategic level. In sharp contrast, the teaching quality evaluation system within many universities still lags behind this reform pace, exposing many deep-seated problems. The traditional evaluation model often focuses on memorizing standardized knowledge points, using closed test papers and single score rankings as the main means. The evaluation paradigm of "emphasizing results over process" and "emphasizing knowledge over ability" has led to a serious disconnect between teaching and evaluation. As a result, evaluation has not effectively led to teaching reform, but has to some extent solidified the inertia of exam oriented education, making it difficult to truly reflect the quality of talent cultivation and effectively respond to the urgent demand for high-quality talents in society. In the face of the above difficulties, the education sector urgently needs a new evaluation paradigm that can connect learning and practice, and connect campus and society. The concept of "real problems and real actions" originating from the fields of engineering education and practical teaching provides important breakthrough ideas for this.

2 The educational logic and evaluation shift of the concept of "real questions, real work"

2.1 Analysis of the connotation of "real questions and real work"

The "real questions, real work" is a profound educational paradigm reform aimed at anchoring the learning process to the complexity of the real world. The so-called "real questions" are essentially a medium for breaking down knowledge barriers, specifically referring to those technological bottlenecks that urgently need to be overcome in the industry, real challenges faced by social life, or exploratory questions that are unresolved at the forefront of academia. Their value lies in their unstructured nature, completely abandoning the simplified and uniquely answered "fake questions" in traditional textbooks. However, "real work" is a transcendence of traditional simulation exercises, requiring students to bridge the gap from theoretical cognition to practical creation, fully immerse themselves in the entire project lifecycle as "researchers", from the initial vague task definition, to the mid-term scheme conception, technology selection, team collaboration, and iterative development, until finally forming a deliverable, assessable, and even practical value generating solution. The process of "doing" is the application of knowledge, which transforms learning from a passive and static process to an actively constructed social practice.

2.2 Logical turn of teaching evaluation

The introduction of the "real question, real action" model will inevitably trigger a fundamental reconstruction of the teaching evaluation system and drive a profound logical shift. Subsequently, there is a "power reconstruction" of the evaluation subject, where the traditional single authoritative evaluation of teachers is deconstructed and replaced by a diverse evaluation community composed of university teachers, industry mentors, student peers, and even project end-users. Furthermore, the "spatiotemporal dimension" of evaluation has been greatly expanded, running through the entire

process of project solving, exploration, and delivery, emphasizing the capture of non intellectual factors such as students' adaptability in difficulties and learning in failure, achieving an organic unity of process and development. In the end, the "methodological system" of evaluation also takes authenticity evaluation as the main paradigm, and through various methods such as outcome defense, project report, process log, and application value evaluation from the enterprise side, jointly outlines a growth map of students' abilities.

3 Construction ideas for a cross-border campus teaching quality evaluation system based on "real questions and real work"

3.1 Construction principles

The construction of the evaluation system should follow three main principles. The first is the principle of ability orientation, which firmly promotes the evaluation focus from the traditional examination of fragmented knowledge mastery to the assessment of students' comprehensive abilities and qualities required to solve real problems, covering dimensions such as interdisciplinary knowledge integration, innovative thinking, practical execution, and team collaboration. The second principle is the developmental principle, which emphasizes that evaluation is an incentive link embedded in the entire teaching process. Through the joint participation of enterprise mentors and on campus teachers in the stage evaluation, students are guided to constantly reflect and make progress. The third principle is the principle of diverse collaboration, which aims to build an evaluation community composed of teachers within the school, enterprise mentors, student peers, and even project users. It is also a real simulation and exercise of the process of students' socialization.

3.2 Overall framework design

3.2.1 Goal oriented dimension

The goal oriented dimension is the logical starting point of the evaluation system, and in this dimension, the core of evaluation is to assess students' comprehensive competence in dealing with real challenges. Specifically, the evaluation objectives are systematically decomposed into multiple measurable ability indicators such as "knowledge integration and application", "technical practice and execution", "innovative thinking and decision-making", and "professional norms and collaboration". These indicators are jointly agreed upon by the school and enterprise at the beginning of the project and clearly transmitted to students, making them a "navigation map" for teachers and students to go together. It means that the evaluation of the advantages and disadvantages of a "real problem" solution is directly aligned with the requirements of the professional position, thereby concretizing the macro training objectives into every teaching practice link, fundamentally ensuring the consistency of teaching and evaluation direction.

3.2.2 Process monitoring dimension

The process monitoring dimension adopts an "embedded" adjoint evaluation method, which continuously observes students' exploration depth, response strategies, resource allocation ability, and resilience when facing real, complex, and undefined problems through various methods such as project proposal demonstration, mid-term dynamic review, team collaboration observation, experiment log review, and iterative version tracking. The cross disciplinary mentor team provides not only phased quantitative grading, but also constructive qualitative feedback in this process, guiding students to adjust their direction and optimize their strategies in a timely manner, so that valuable implicit growth in the learning process can be seen and recognized, thereby inspiring the occurrence of deep learning.

3.2.3 Dimension of achievement feedback

The outcome feedback dimension is a comprehensive final evaluation of learning outcomes during the project cycle, but it focuses more on evaluating the "dynamic value" of the outcomes themselves and the "comprehensive presentation" of students through a high-level, cross disciplinary outcome defense meeting. The evaluation community is composed of academic mentors on campus, enterprise experts with rich practical experience, and even potential user representatives. Based on predetermined ability indicators, it conducts multi-dimensional and in-depth evaluations of the technical rationality, innovation, completion, potential application value, and team defense performance of project results. The feedback dimension emphasizes the depth of feedback, with enterprise experts providing insights from the perspective of market prospects, academic mentors focusing on academic norms, and students' self-evaluation and peer evaluation revealing their team's cognitive level.

3.2.4 Continuous improvement dimension

The dimension of continuous improvement is a key closed loop to ensure the vitality of the entire evaluation system, making the endpoint of evaluation a new starting point for teaching reform. This dimension systematically collects,

integrates, and analyzes all evaluation data from the first three dimensions, including quantitative scores, qualitative comments, student reflection reports, and mentor observation records. By deeply mining data, teaching management personnel can accurately identify systemic issues in course settings, project difficulty, teacher allocation, or resource support. For example, if multiple groups of students generally score low on the "innovative thinking" indicator, it may indicate the need to strengthen training in innovative methodology in the course; If enterprise mentors generally give feedback that students lack engineering standardization, they should review the teaching focus of relevant practical courses. Evidence based insights are regularly fed back to the Professional Training Program Revision Committee, curriculum groups, and school enterprise cooperation management departments, driving iterative optimization of talent development goals, curriculum systems, teaching resource allocation, and even school enterprise cooperation models, ultimately forming a virtuous upward spiral of "evaluation diagnosis feedback improvement" and returning to "higher-level goals".

3.3 Design of evaluation indicator system

The design of the evaluation index system is the starting point of the entire construction concept, transforming the macro framework into observable, measurable, and actionable specific standards. This system completely abandons the single score oriented approach and instead adopts a multi-dimensional composite structure that integrates quantitative scoring and qualitative description. It mainly consists of a set of primary indicators with clear weights, aiming to comprehensively characterize the comprehensive literacy demonstrated by students in dealing with "real exam" challenges. The ability to integrate knowledge (accounting for about 30%) tests a profound understanding of professional knowledge and the transfer and application of interdisciplinary knowledge; Problem solving ability "(accounting for about 30%) focuses on the full cycle practical performance from requirement analysis, solution design, technical implementation to iterative optimization; Team collaboration ability "(accounting for about 20%) evaluates students' collaborative contribution and achievement display level in the team; The "innovation value" (about 20%) measures the innovation and potential practical application value of the solution. At the operational level, all indicators are cross validated through multiple sources of evidence such as back-to-back quantitative scoring by school enterprise mentors, qualitative comments from all participants, technical evaluation of project deliverables, and on-site performance in the final defense, forming a three-dimensional evaluation conclusion.

4 Implementation path of the "real questions and real work" evaluation system in cross-border campus scenarios

4.1 Realistic design of teaching tasks

The realistic design of teaching tasks is the foundation for the operation of the entire system, therefore, it is necessary to establish a smooth channel for transforming external real needs into executable teaching tasks within the school. This is not just about introducing a few cases, but about establishing deep strategic partnerships with industry leaders, local governments, or social organizations to jointly build a dynamically updated "real project library". The project should be cutting-edge, challenging, and appropriate, for example, it can be a process optimization problem that enterprises urgently need to solve, a public service design purchased by the government, or a public welfare innovation project with social significance. In the task design phase, both on campus teachers and enterprise mentors must jointly intervene to transform the original problems into teaching methods. While maintaining their authenticity, they must anchor the tasks to the students' "zone of proximal development" to ensure that the tasks are both challenging and can be completed through team efforts. The final project task book should clearly define the background objectives, technical constraints, expected outcome forms, and value demands from the demand side, in order to create a learning environment that is infinitely close to the professional field for students and ensure "true" quality from the starting point.

4.2 Interdisciplinary teaching organization model

Faced with highly complex real-world problems, the traditional single subject classroom teaching system has become inadequate and must be replaced by a flexible interdisciplinary teaching organizational model. Therefore, universities need to break down departmental barriers and dynamically form project teams composed of students from different professional backgrounds based on the inherent knowledge needs of the project. For example, a development project for "intelligent environmental protection equipment" can involve students from mechanical, electronic, software, industrial design, and even marketing majors. Correspondingly, teaching management should launch a "project-based" course module, allowing students to choose courses across disciplines in specific semesters, and their project achievements can be recognized and exchanged for credits in related courses. At the guidance level, it is necessary to match a "cross-border mentor group" composed of internal teachers from relevant departments and enterprise experts, implementing a dual

mentor system that combines collective guidance and division of labor. The interdisciplinary teaching organization model simulates the common form of teamwork in modern industrial practice, and also promotes the cross integration of different disciplines at the knowledge level, allowing students to naturally acquire interdisciplinary thinking in the process of solving common problems, providing rich observation scenarios for diversified evaluation.

4.3 Process based data collection mechanism

In order to objectively and comprehensively evaluate students' learning and growth processes, it is necessary to establish a process oriented data collection mechanism that runs through the entire project. This mechanism relies on the combination of digital platforms and structured evaluation tools, and systematically records students' behavioral outputs throughout the project lifecycle, including but not limited to project proposals, multiple iterations of draft plans, team meeting minutes, experimental data records, typical problems encountered and solutions, personal contribution logs, and feedback from mentors at different stages. Process data constitutes the evidence chain for evaluating students' dimensions such as "process practice and problem-solving ability" and "teamwork ability", making the evaluation no longer dependent on short-term impressions during the final defense, but based on students' performance in long-term tasks.

4.4 Collaborative mechanism of multiple evaluation subjects

Firstly, it is necessary to clearly define the focus of evaluations from all parties, with enterprise mentors/industry experts emphasizing the technical feasibility, innovation, and market value of the results; On campus teachers are more concerned with the depth of knowledge application, the rigor of the process, and academic norms; Student self-evaluation promotes the improvement of metacognitive ability, while peer evaluation can reflect the distribution of contributions within the team; When possible, incorporating feedback from the end users of the project can directly verify the practical value of the results. Secondly, it is necessary to establish a standardized evaluation process, such as organizing online and offline joint review meetings at key project nodes, to encourage evaluators from different backgrounds to have sufficient dialogue on evaluation criteria, observation findings, and final judgments, bridging the possible differences in perspectives between academia and industry. Finally, it is necessary to design a structured comprehensive evaluation report template that can organically integrate quantitative scores from different channels, and ultimately form a "learning diagnosis report" that can provide both grade evaluation and detailed descriptions of students' strengths, weaknesses, and areas of effort, in order to truly play the important role of evaluation in promoting development.

5 Conclusion

In the current macro context of higher education focusing on cultivating innovative and applied talents, the traditional teaching evaluation model mainly based on score ranking is no longer suitable for the new economic form's new requirements for talent ability structure. Therefore, based on the cross-border evaluation system of "real questions and real actions", we are trying to break down the barriers between campus and society, reshape the value orientation of evaluation in real situations, and its practice is related to the essential improvement of talent cultivation quality. It is an important pivot to promote the fundamental transformation of teaching mode from "knowledge transmission" to "ability generation".

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