



Constructing a Statistical System for Curriculum Teaching Evaluation Oriented to Teacher-Student Recognition Relationship via the Pressure-State-Response Framework

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Abstract. The teacher-student recognition relationship is an inherent requirement of high-quality education development and a key carrier to achieve the unity of affective recognition, rights recognition, and social recognition. At present, college curriculum teaching evaluation is generally featured by emphasizing outcomes over process, knowledge over relationship, and uniformity over difference, which lacks systematic observation and statistical measurement of teacher-student recognition relationship. Based on the OECD Pressure-State-Response (PSR) framework, this paper deconstructs the teacher-student recognition relationship into three core modules: affective recognition, rights recognition, and social recognition. Following the principle of “primary attribution + functional positioning” to clarify dimension boundaries and mark associated indicators, statistical, monitorable and comparable indicators for curriculum teaching evaluation are designed from the three dimensions of pressure, state and response respectively, distinguishing core indicators and extended indicators for different institutional conditions, forming a complete statistical system and clarifying the statistical survey system and implementation methods. A four-in-one survey system with clear collection frequency and responsible units is constructed, and a “pressure–state–response–feedback” closed-loop flowchart is designed to enhance logical intuitiveness. This study can provide quantitative tools and practical references for colleges and universities to improve classroom teaching quality, build equal and respectful teacher-student relationships, and optimize the teaching quality assurance system.

Keywords: Recognition Theory, Teacher-Student Recognition Relationship, Curriculum Teaching Evaluation, Statistical System, Pressure-State-Response.

1 Introduction

Against the background of student-centered teaching reform, classrooms are not merely places for knowledge transmission, but interactive fields for personality respect, equal rights and value identity. As Honneth’s recognition theory points out, individuals’ self-

identity and healthy growth derive from affective care, rights protection and social value recognition^[1], which is also applicable in the educational field. A good teacher-student relationship can improve the well-being of teachers and students and achieve higher-quality teaching process and outcomes^[2]. A sound teacher-student recognition relationship means teachers' respect for students' subjectivity, tolerance for differentiated development, guarantee of equal participation and affirmation of growth and progress, which is the foundation for enhancing learning acquisition, psychological security and academic achievement.

However, obvious limitations still exist in the current college curriculum teaching evaluation system: first, the evaluation content overemphasizes knowledge mastery and classroom discipline while ignoring emotional interaction, equal rights and value identity; second, the evaluation method focuses on outcome assessment and quantitative scoring, lacking process-based statistics of teacher-student relationship status; third, the evaluation indicators are fragmented and fail to form a systematic logic of "problem identification–status diagnosis–improvement response". As a result, teaching evaluation can hardly reflect the quality of education, nor provide a scientific basis for improving teacher-student relationships and enhancing teaching warmth.

As an internationally universal systematic statistical and evaluation tool, the Pressure-State-Response (PSR) framework clearly depicts the transmission mechanism of "cause–status–improvement" and has been widely used in resources^[3], ecological environment^[4], agriculture^[5] and other fields. Introducing it into the evaluation of teacher-student recognition relationship helps realize the transformation from qualitative description to quantitative statistics and from empirical judgment to scientific monitoring. Accordingly, taking recognition theory as the value core and the PSR framework as the structural support, this paper constructs a statistical system for curriculum teaching evaluation oriented to teacher-student recognition relationship, clarifies the statistical framework, scope, content and survey methods, and provides an operable statistical plan for the high-quality development of college classroom teaching.

2 Related Concepts and Basic Theories

2.1 Recognition Theory

Recognition theory^[6], systematically proposed by the German philosopher Axel Honneth on the basis of Hegel's recognition theory and Mead's symbolic interactionism, is a core theory in contemporary critical social philosophy. The core viewpoint of recognition theory holds that individuals' self-identity, personality development and mental health all rely on three types of mutual recognition that are hierarchical and interrelated: the first is affective care (love), which mainly exists in intimate relationships, emphasizing emotional understanding, care and tolerance, and is the foundation for individuals to form a sense of security and self-worth; the second is rights protection (respect), which exists in the public domain, emphasizing the equality of individual rights and the fairness of social systems, and is the guarantee for individuals to obtain equal status and dignity; the third is social value recognition (solidarity), which exists in the social

division of labor, emphasizing the recognition of individual contributions and abilities, and is the key for individuals to integrate into society and obtain a sense of belonging.

2.2 Teacher-Student Recognition Relationship

Teacher-student recognition relationship^[7] is the specific embodiment of Honneth's recognition theory in the field of curriculum teaching, which refers to the symbiotic interactive relationship formed between teachers and students in the process of teaching and learning, integrating affective recognition, rights recognition and social recognition. To clarify the boundaries of the three recognition dimensions and resolve indicator overlap, this study strictly follows the indicator assignment principle of "primary attribution + functional positioning": (1) Affective recognition is primarily attributed to emotional interaction, psychological experience and care behavior, focusing on the generation of sense of security and belonging; (2) Rights recognition is primarily attributed to opportunity allocation, right guarantee and system fairness, focusing on the equality of participation and expression; (3) Social recognition is primarily attributed to progress affirmation, value confirmation and achievement incentive, focusing on the acquisition of sense of accomplishment and self-worth. Cross-cutting behaviors are classified according to their core function, and explicitly marked as associated indicators in statistical notes and Table 1 to standardize cross-dimensional indicator processing.

The three dimensions of the teacher-student recognition relationship are interrelated and mutually supportive as an integrated organic whole. Affective recognition serves as the emotional foundation, requiring teachers to respect individual differences, respond to students' emotional needs, care about their study and life difficulties, and build a safe, warm and inclusive classroom atmosphere to make students feel valued and trusted. Rights recognition acts as the institutional guarantee, demanding adherence to educational fairness, equal opportunities for classroom participation, expression and personal development, as well as respect for students' rights to question, express and choose, so as to prevent partiality and neglect based on academic performance or personality. Social recognition functions as the goal orientation, advocating attention to students' all-round growth rather than mere academic performance, affirming their non-academic efforts and strengths, and adopting scientific evaluation to help students perceive self-value, gain a sense of accomplishment and boost learning motivation. Collectively, the three dimensions form the core connotation of high-quality teacher-student relationships and lay a solid theoretical foundation for constructing the statistical indicators of this study.

2.3 The Pressure-State-Response Framework

The Pressure-State-Response (PSR) framework^[8], a classic systematic analysis model jointly developed by OECD and UNEP, is characterized by clear logic, hierarchical structure, and favorable statistical and monitorable applicability. It classifies system operation into three interrelated dimensions: Pressure denotes the constraints, conflict sources and problem triggers hindering systematic sound operation; State indicates the real development level and operational features under pressure; Response represents

targeted countermeasures and governance practices to improve the current situation and relieve system pressure. The PSR framework forms a complete “pressure–state–response–feedback” closed loop, which effectively interprets the inherent logic of problem occurrence, status manifestation and optimization improvement, and provides strong methodological support for establishing a scientific and standardized statistical evaluation system.

3 Statistical Framework of Curriculum Teaching Evaluation Oriented to Teacher-Student Recognition Relationship

3.1 Adaptability Between the PSR Framework and Teacher-Student Recognition Relationship

The formation and development of teacher-student recognition relationship is essentially a systematic process of “being restricted–presenting status–being improvable–feedback optimization”. Pressure refers to various factors hindering the formation of a sound teacher-student recognition relationship, including institutional constraints, classroom structure, resource supply and behavioral conflicts; state refers to the actual performance and achievement level of the teacher-student recognition relationship in class, reflecting the real conditions of affective recognition, rights recognition and social recognition; response refers to teaching adjustments, institutional optimization and action improvements taken by teachers, schools and students to enhance recognition relationships; feedback links real-time state data with pressure diagnosis and response adjustment to form a closed-loop optimization mechanism. The three links plus feedback are interconnected to form a complete statistical logic.

The Pressure-State-Response framework proposed by OECD accurately corresponds to the operation law of the teacher-student recognition relationship: the pressure layer answers “what factors hinder the formation of sound teacher-student relationships”, the state layer answers “what level is the current teacher-student recognition relationship at”, and the response layer answers “what actions should be taken to improve it”. Constructing a statistical system based on this framework realizes the whole-chain monitoring, diagnosis and improvement of classroom teaching, making up for the shortcomings of traditional teaching evaluation that values outcomes over relationships.

3.2 Statistical Scope and Evaluation Objects

This system takes college curriculum teaching as the evaluation object, covering the whole process of pre-class, while-class and after-class. It focuses on key links such as classroom interaction, guidance and feedback, evaluation and motivation, rights protection and emotional support. The core statistical objects include teachers’ teaching behaviors, students’ participation status, teacher-student interaction processes and teaching institutional environment. The statistical goal is to measure whether affective

recognition is in place, whether rights recognition is equal, and whether social recognition is sufficient, so as to provide data support for teaching improvement.

4 Design of Statistical Content for Teacher-Student Recognition Relationship Based on the PSR Framework

4.1 Statistical Content of Teacher-Student Recognition Relationship

This study divides the teacher-student recognition relationship into three modules: affective recognition, rights recognition and social recognition. Following the indicator assignment principle of "primary attribution + functional positioning", statistical indicators are designed for each module following the Pressure-State-Response logic, with core indicators (C) and extended indicators (E) clearly distinguished to adapt to different institutional conditions, and clear statistical units, scale formats and data sources, forming collectable, calculable and comparable statistical content. Cross-dimensional associated indicators are marked with "*" in Table 1. All indicators are presented as objective statistics, frequencies, proportions, means and satisfaction degrees, balancing operability and systematicness. A visual flowchart of the "pressure-state-response-feedback" cycle is in Fig. 1.

Table 1. Specific design of statistical content for teacher-student recognition relationship under the PSR framework

Module	Pressure (Statistics of Obstacle Factors)	State (Statistics of Current Level)	Response (Statistics of Improvement Actions)
Affective Recognition Module	1. Large-class teaching pressure (C); 2. Insufficient teacher-student ratio (C); 3. Limited teacher guidance time (C); 4. Rigid classroom management (E); 5. Students' experience of being neglected or denied* (C, associated with social recognition); 6. Blocked communication channels (E)	1. Classroom sense of security and belonging (Likert 5-point scale, student survey, C); 2. Frequency of teachers' listening, encouragement and tolerance (times/class, classroom observation, C); 3. Times of one-to-one communication (times/semester, teacher report, C); 4. Students' emotional support acquisition (Likert 5-point scale, student survey, C); 5. Frequency of teacher-student emotional interaction* (times/class, classroom observation, E, associated with rights recognition)	1. Participation in recognition-oriented teaching training (times/semester, school record, C); 2. Duration of personalized guidance (minutes/student/semester, teacher log, C); 3. Frequency of process encouragement and affirmation (times/class, classroom observation, C); 4. Frequency of after-class Q&A and communication (times/week, teacher record, E); 5. Emotional support teaching improvement measures (items, teacher report, E)
Rights Recognition Module	1. Single and rigid evaluation criteria (C); 2. Unequal classroom participation opportunities (C); 3. Discourse power biased toward a few students (C); 4. Neglected differentiated needs* (E, associated with affective recognition); 5. Restricted rights to question and express (C)	1. Participation rate of students' speaking, questioning and presentation in class (%/class, classroom observation, C); 2. Statistics of opportunity fairness (Likert 5-point scale, student survey, C); 3. Coverage rate of differentiated tasks (%/class, teacher report, C); 4. Proportion of diversified evaluation (%/total evaluation items, teaching plan, E); 5. Students' equality score (Likert 5-point scale, student survey, C)	1. Equal interaction teaching design (items/semester, teacher plan, C); 2. Implementation of layered and classified teaching (coverage rate %, teacher report, C); 3. Implementation of students' participation in evaluation rights (frequency, classroom record, E); 4. Reform of diversified process assessment (proportion %, teaching file, E); 5. Construction of classroom democratic mechanism (items, school system, C)
Social Recognition Module	1. Lack of recognition for progress and highlights (C); 2. Score-oriented evaluation bias (C); 3. Absence of growth records (E); 4. Insufficient achievement display and affirmation* (C, associated with affective recognition); 5. Low sense of value and acquisition (C)	1. Coverage rate of students' progress being recognized (%/class, teacher record, C); 2. Proportion of non-examination evaluation (%/total evaluation, teaching plan, E); 3. Score of sense of accomplishment and value (Likert 5-point scale, student survey, C); 4. Timeliness of growth feedback (days, teacher log, C); 5. Degree of strengths and highlights being noticed (Likert 5-point scale, student survey, C)	1. Implementation of growth-oriented evaluation (coverage rate %, teacher report, C); 2. Highlight display and praise mechanism (frequency/semester, classroom record, E); 3. Construction of process growth archives (completeness score, teaching management, E); 4. Frequency of personalized feedback (times/student/semester, teacher record, C); 5. Honor and recognition incentive measures (items/semester, school file, C)

Note: *Marked as associated indicators across dimensions; C=Core indicator (mandatory for all colleges); E=Extended indicator (optional for ordinary).

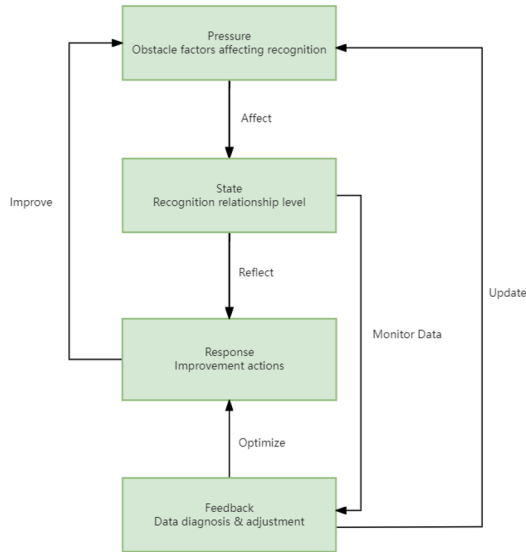


Fig. 1. A visual flowchart of the “pressure–state–response–feedback” cycle is designed to intuitively display the logical connection between the PSR framework and teacher-student recognition relationship.

4.2 Internal Logic and Correlation Among Modules

The three modules of affective recognition, rights recognition and social recognition are not isolated, but form an organic whole of progressive, mutually supporting and synergistically coupling in the classroom teaching field. Affective recognition serves as the foundation, creating a safe, inclusive and trustworthy classroom psychological environment through teachers’ listening, understanding, tolerance and care, which determines the “warmth” and sense of belonging of the classroom and is the premise for the realization of rights recognition and social recognition. Rights recognition acts as the guarantee, ensuring respect for students’ rights of participation, expression and development in class through equal opportunity allocation, diversified evaluation and differentiated teaching, which is the key to stabilizing and institutionalizing affective recognition and the core of improving classroom fairness. Social recognition acts as the guide, emphasizing that students’ growth, progress and contributions are seen, recognized and motivated, bringing students a sense of value, accomplishment and development motivation, which is the ultimate direction and effect embodiment of affective recognition and rights recognition.

From the perspective of PSR logic, the pressure factors of the three modules overlap and amplify to form systematic constraints hindering the formation of sound teacher-student relationships; the state indicators verify each other to depict the real level of teacher-student recognition relationship; the response measures need coordinated efforts, as independent improvement of one aspect can hardly achieve overall promotion.

Only by synchronously promoting and balancedly developing the three types of recognition (affective, rights and social) can classrooms be transformed from traditional control-oriented and knowledge-transmission models to respect-oriented, equal, empowering and symbiotic models, thus truly implementing the student-centered education concept.

4.3 Statistical Grouping and Comparative Design

To enhance the pertinence, differentiation and application value of statistical evaluation, this system adopts multi-dimensional and hierarchical statistical grouping to accurately depict and compare teacher-student recognition relationships of different courses, classes and stages.

First, grouping by course type. Courses are divided into general education courses, professional core courses, experimental and practical courses, interdisciplinary integrated courses, etc. Different courses vary greatly in teaching objectives, class size and interaction modes. Grouping helps identify common problems and specific weaknesses of various courses in constructing recognition relationships, providing a basis for classified implementation.

Second, grouping by class size. Divided into large classes (more than 50 students), medium classes (30–50 students) and small classes (less than 30 students). Class size directly affects the frequency of teacher-student interaction, individual attention and equal participation opportunities. Grouping statistics can clearly reveal the impact of scale on affective recognition, rights recognition and social recognition, providing data support for small-class teaching and layered teaching.

Third, grouping by grade level. Divided into junior grades, senior grades and graduating classes. Students at different grades differ significantly in cognitive characteristics, psychological needs and development goals. Grouping comparison helps grasp the staged characteristics of recognition needs, making teaching improvement and evaluation orientation more in line with students' growth laws.

In addition, cross-grouping can be carried out by course nature (theoretical/practical) and discipline category (liberal arts, science, engineering, art) to form a multi-dimensional comparable database, accurately positioning weak courses, weak links and weak periods, and providing a precise direction for continuous improvement of teaching quality.

5 Statistical Survey System and Methods

The statistical evaluation of curriculum teaching oriented to teacher-student recognition relationship adheres to the principles of normalization, operability, traceability and sharing, constructing a four-in-one statistical survey system of “regular statements + sample surveys + special statistics + data integration”, and forming a statistical working mechanism with multi-subject participation, multi-channel collection and multi-link quality control to ensure data authenticity, comprehensiveness, reliability and usability. Considering the implementation cost and resource constraints of ordinary universities,

this system designs a graded implementation plan with clear collection frequency and responsible units (Table 2): key universities adopt full coverage of core + extended indicators, ordinary universities adopt sampling + core indicators, and vocational colleges adopt core indicator monitoring to reduce administrative and labor costs.

Table 2. Statistical survey collection frequency and responsible units

Survey Type	Collection Frequency	Responsible Unit	Implementation Scope
Regular statistical statement	Per semester/teaching cycle	Teachers + School/department teaching affairs office + University-level teaching quality department	Full coverage (core indicators); optional (extended indicators)
Student sample questionnaire	Mid-term + end of semester	Student affairs office + Teaching quality department	Sampling (15%-20% of total students)
Classroom observation special statistics	Per semester (10%-15% sampling rate)	Teaching supervision team + Peer teachers + Teaching managers	Sampling (core courses + representative courses)
Multi-department data collaborative integration	Quarterly (ordinary universities); real-time (key universities)	Academic affairs office + Student affairs office + Teaching quality department + Psychological counseling center	Full coverage of multi-source data

First, the regular statistical statement system for curriculum teaching. The Academic Affairs Office uniformly designs statement specifications and submission processes, which are filled in by teachers per semester or teaching cycle. The statistical content includes objective and quantifiable indicators such as classroom interaction frequency, personalized guidance duration, feedback times, process evaluation proportion and differentiated teaching implementation, which are initially reviewed, aggregated and filed by the teaching affairs office of schools/departments, and rechecked and analyzed by university-level teaching quality departments to realize traceability and comparability of teaching process data.

Second, the student sample questionnaire survey system. Anonymous sample surveys are conducted among students, using the Likert 5-point scale to measure state indicators such as classroom sense of security, fairness, belonging and value, taking into account classroom experience, opinions and improvement needs. The sampling ratio is reasonably set according to class size to ensure sample representativeness. The survey results are used to calculate the teacher-student recognition relationship index, forming quantifiable and comparable evaluation results.

Third, the special statistical system for classroom observation. To reduce cost, adopt "peer observation + random sampling" instead of full coverage, with a sampling rate of 10%–15% per semester. Classroom observation teams composed of teaching supervisors, peer teachers and teaching managers conduct on-site lectures and records according to a unified observation scale. Objective indicators such as student participation rate, teachers' encouragement behaviors, equal interaction, equal opportunity distribution and classroom democratic atmosphere are mainly counted to reduce subjective evaluation bias and improve the objectivity and standardization of evaluation.

Fourth, the multi-department data collaborative integration system. A data sharing and business collaboration mechanism is established among the Academic Affairs Office, Student Affairs Office, Teaching Quality Department, Psychological Counseling Center and other departments, integrating multi-source data such as teaching

evaluation, student status, supervision feedback, psychological counseling, academic early warning and employment quality to build a comprehensive database of teacher-student recognition relationships. More comprehensive and systematic diagnostic conclusions are formed through data cross-validation, dynamic comparison and trend analysis. For ordinary universities with limited informatization conditions, adopt "regular manual aggregation + quarterly data integration" instead of real-time sharing to reduce platform construction and maintenance costs.

In terms of organization and implementation, the system implements an operating mechanism of "university-level overall planning, school/department implementation, course responsibility, teacher leadership and student participation". The statistics department provides methodological guidance and quality control, the academic affairs office is responsible for organization, implementation and supervision, schools/departments are in charge of daily management and data review, teachers are responsible for process recording and timely submission, and students provide objective feedback, forming a clearly divided and efficiently coordinated statistical work pattern to ensure the normalized and long-term operation of the evaluation system.

6 Conclusion

This paper deeply integrates recognition theory with the Pressure-State-Response framework and constructs a statistical system for curriculum teaching evaluation oriented to teacher-student recognition relationship, realizing the transformation of teaching evaluation from "knowledge-oriented" to "relationship-oriented", from "outcome-oriented" to "process-oriented", and from "empirical judgment" to "statistical monitoring". Centered on the three modules of affective recognition, rights recognition and social recognition, the system includes three layers of statistical indicators (pressure, state and response) for each module.

The application of this system helps colleges and universities systematically diagnose weaknesses in classroom teacher-student relationships, accurately identify obstacles, scientifically monitor improvement effects, and promote the formation of a respectful, equal, inclusive and empowering classroom ecology. Meanwhile, the system can provide objective data support for teaching quality improvement, teacher assessment, professional certification and teaching evaluation, promote education to return to the essence of nurturing people, and realize the organic unity of knowledge transmission and value guidance, ability cultivation and relationship construction.

It should be noted that this paper focuses on the theoretical construction and indicator design of the statistical system, which belongs to theoretical research. The indicator system, statistical framework and survey methods proposed in this paper have not been verified by empirical data, and their reliability, validity, discrimination ability and stability need to be further tested. In future research, the author will select pilot courses to carry out empirical applications, and conduct reliability and validity tests and case studies through sampling statistics, classroom observation, questionnaire surveys and other methods, so as to verify the scientificity, applicability and operability of the system, and continuously optimize the indicator structure and statistical methods.

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Disclosure of Interests

The author has no competing interests to declare that are relevant to the content of this article.

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