An AHP-Based Performance Evaluation Model for Vocational High School Teachers: Integrating the Distinctive Characteristics of Vocational Education

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ABSTRACT

Teacher performance evaluation in vocational high schools should not only assess general teaching competencies but also reflect the distinctive characteristics of vocational education. In practice, teacher evaluation often focuses on standard competencies, including pedagogical, personal, social, and professional competencies, while aspects related to industry relevance, occupational competence, work-based learning, and industrial culture are not fully considered. This study aims to develop an AHP-based performance evaluation model for vocational high school teachers by integrating general teacher competencies with the specific characteristics of vocational education. The Analytical Hierarchy Process (AHP) is employed to structure the evaluation criteria hierarchically and determine the priority weights of each criterion and sub-criterion based on expert judgment. The proposed model provides a systematic and objective framework for evaluating vocational teacher performance in a more relevant and contextual manner. It is expected to assist school leaders, policymakers, and vocational education stakeholders in improving teacher performance evaluation, strengthening the quality of vocational learning, and supporting better alignment between vocational schools and industrial needs.

Introduction

Vocational education plays a strategic role in preparing graduates who possess occupational competence, practical skills, adaptability, and readiness to enter the industrial world. Unlike general education, vocational education emphasizes the connection between school-based learning and the needs of the world of work. Therefore, vocational high schools require teachers who are not only able to teach, but also able to connect learning materials with vocational competencies, industry standards, technology, and work culture. In this context, vocational high school teachers have more complex task characteristics because they serve as educators, practical learning mentors, developers of occupational competencies, and bridges between schools and the business or industrial sector.

The performance of vocational high school teachers cannot be evaluated solely based on general teaching ability. Vocational high school teachers need to possess pedagogical, professional, vocational, and technological competencies. Vocational teacher competency standards need to include pedagogical, professional, vocational, and technological competencies in order to meet the demands of vocational education [1]. In line with this, vocational teacher competency profiles should reflect a combination of pedagogical ability, work experience, professional competence, and the ability to adapt to changes in the world of work [2]. Therefore, the performance evaluation of vocational high school teachers needs to consider the distinctive characteristics of vocational education, not merely general teacher competencies.

One important characteristic of vocational education is practice-based and work-based learning. Vocational high school teachers are required to be able to design, guide, and evaluate learning that is closely related to real workplace experiences, such as industrial work practice, teaching factory, industry-based projects, and practical learning according to the field of expertise. Work-based learning plays an important role in developing students' employability skills [3]. In addition, Industry 4.0-based learning can improve vocational high school students' practical skills because learning is designed based on the principle of learning by doing and industry needs [4].]. This indicates that teachers' ability to connect learning with the world of work is an important aspect of vocational high school teacher performance evaluation.

Technological development also requires vocational high school teachers to possess digital competence. In vocational education, digital competence is not only related to the use of learning media, but also to teachers' readiness to prepare students for an increasingly digitalized world of work. Teachers' digital competence is important to support technology-based learning, including the use of a Learning Management System [5]. Therefore, the performance evaluation of vocational high school teachers needs to include teachers' ability to utilize technology in designing, implementing, and evaluating learning.

In addition to pedagogical, vocational, and technological aspects, the performance of vocational high school teachers is also influenced by continuous professional development and relationships with industry. Continuous professional development influences the improvement of vocational teachers' competence [6]. Meanwhile, teachers' strategies for improving the competence of vocational high school graduates need to be linked to industry needs [7]. This shows that vocational high school teachers do not only work within the classroom, but also need to understand developments in the world of work, build collaboration with industry, and develop learning that is relevant to graduates' needs.

However, teacher performance evaluation currently used in many contexts still focuses largely on general competencies, such as pedagogical, personal, social, and professional competencies. These competencies remain important as the foundation of teacher professionalism, but they do not fully reflect the distinctive tasks of vocational high school teachers. Aspects such as vocational competence, technological competence, industry relevance, work-based learning, teaching factory, industrial work culture, and collaboration with industry are not always included as main indicators in teacher performance evaluation. As a result, the evaluation of vocational high school teacher performance may be less contextual and may not fully describe teachers' readiness to support the goals of vocational education.

Another gap in vocational high school teacher performance evaluation is the absence of clear priority weighting for each indicator. In many evaluation instruments, each indicator is often treated equally, even though in vocational education each aspect may have a different level of importance. For example, pedagogical competence is important to ensure learning quality, but vocational competence, technological ability, industry relevance, and the ability to manage work-based learning also play strategic roles in determining the quality of vocational high school teachers. Without clear weighting, evaluation results may become less objective and may not reflect the priorities of vocational education.

To address these problems, this study proposes an Analytical Hierarchy Process (AHP)-based performance evaluation model for vocational high school teachers. AHP was selected because it is able to structure complex evaluation problems into a hierarchy and determine the priority weight of each criterion based on expert judgment. In the context of vocational high school teacher performance evaluation, AHP can be used to integrate general teacher competencies with the distinctive characteristics of vocational education. The developed model includes pedagogical, professional, vocational, and technological competencies, industry relevance, work-based learning, industrial work culture, and collaboration with the business and industrial sectors.

The use of AHP is also important for improving the objectivity of evaluation. Through criterion weighting, schools can identify which aspects are most important in assessing vocational high school teacher performance. The effectiveness of vocational teachers' teaching methods is related to teachers' perceived competence; therefore, the evaluation model needs to consider competency dimensions that are aligned with the characteristics of vocational education [8]. Teacher performance management in vocational high schools should be directed toward improving graduate quality [9]. Thus, the teacher performance evaluation model should be able to provide useful information for school principals in designing teacher coaching and professional development programs.

Based on the above explanation, this study aims to develop an AHP-based performance evaluation model for vocational high school teachers by integrating the distinctive characteristics of vocational education. Specifically, this study aims to identify evaluation criteria and subcriteria, develop the evaluation hierarchy structure, determine the priority weight of each criterion, and produce a more objective and contextual evaluation framework. This model is expected to help schools improve the quality of vocational learning, strengthen teacher professional development, and support the alignment between vocational education and industry needs.

Methods

This study used a research and development approach combined with the *Analytical Hierarchy Process* (AHP) method. The development approach was selected because the main objective of this study was to produce a performance evaluation model for vocational high school teachers that not only assesses general teacher competencies but also integrates the distinctive characteristics of vocational education. In the context of evaluation model development, this study focused on formulating criteria, constructing a hierarchical structure, validating content, determining priority weights, and interpreting an evaluation model that can be used in the context of vocational education. The development of teacher performance evaluation instruments needs to be carried out systematically so that the indicators used truly align with learning demands and changes in educational paradigms[10].]. Therefore, this study positions the performance evaluation of vocational high school teachers as a model development process based on needs, theory, and expert judgment.

The AHP method was used because the performance evaluation of vocational high school teachers is a multi-criteria problem. Vocational high school teachers should not only be evaluated based on pedagogical, personal, social, and professional competencies, but also on vocational competence, technological competence, industry relevance, work-based learning, industrial work culture, and collaboration with business and industry. AHP can be used to assess vocational teacher competency standards through the structured formulation of criteria and subcriteria [1]. AHP is also relevant because it helps decision-makers determine the relative importance of various criteria through pairwise comparison. AHP is a multi-criteria decision-making method that is useful for systematically determining criterion weights, especially when decisions involve several interrelated aspects [11].

The research design consisted of several stages. The first stage was a literature review to identify the criteria and subcriteria for evaluating vocational high school teacher performance. The literature review covered articles discussing vocational teacher competence, teacher performance evaluation, work-based learning, teacher digital competence, teacher professional development, instrument validation, and the AHP method. This stage was important because the developed evaluation model needed a strong theoretical foundation. TVET teachers in the digital era require a comprehensive competency framework to respond to technological changes and learning needs [12]. Therefore, the criteria for evaluating vocational high school teacher performance in this study were developed based on a combination of general teacher competencies and the specific characteristics of vocational education.

The second stage was the construction of the initial evaluation model. The initial construct was developed by considering two broad categories: general teacher competencies and the distinctive characteristics of vocational education. General teacher competencies include pedagogical, professional, social, and personal competencies. Meanwhile, the distinctive characteristics of vocational education include vocational competence, industry relevance, work-based learning, technological competence, industrial work culture, and school–industry collaboration. The pedagogical competence of productive teachers in vocational high schools needs to include the ability to design, implement, use technology, evaluate learning, and develop students [13]. Therefore, the initial construct of this model positions teachers not only as instructors but also as developers of vocational learning connected to the needs of the world of work.

The third stage was content validation of the criteria and subcriteria. Content validation was conducted to ensure that the developed indicators were aligned with the concept of vocational high school teacher performance and relevant to the characteristics of vocational education. Validation was carried out through assessments by experts with experience in vocational education, educational evaluation, school management, or industry. Content validity is an important stage in instrument development, especially when the construct being measured requires expert judgment [14].]. Evidence of content-based validity can be obtained through expert assessments of the relevance, clarity, and appropriateness of instrument items [15]. In this study, content validation was used to select the criteria and subcriteria before they were included in the AHP instrument.

The validation stage could also use the *Content Validity Index* (CVI) approach to determine the level of expert agreement regarding the relevance of each indicator. CVI can be used to calculate content validity based on expert panel assessments at both the item and scale levels [16]. This approach helps researchers ensure that the indicators used in the evaluation model are truly appropriate. In this study, criteria or subcriteria that received low ratings from experts could be revised, merged, or removed so that the final model would be conceptually and practically stronger.

The fourth stage was the development of the AHP hierarchical structure. The hierarchy was arranged from the most general level to the most operational level. The first level was the main goal, namely developing a performance evaluation model for vocational high school teachers. The second level contained the main criteria, such as pedagogical competence, professional competence, vocational competence, technological competence, industry relevance, work-based learning, industrial work culture, and industry collaboration. The third level contained subcriteria that described more detailed indicators for each main criterion. This hierarchical structure is important because AHP works by breaking down complex problems into smaller and measurable components. AHP uses the principles of pairwise comparison and logical consistency in determining criterion priorities [17].

The fifth stage was the development of the pairwise comparison instrument. This instrument was prepared in the form of a comparison matrix between one criterion and another. The experts were asked to determine the relative importance of each criterion based on the objective of evaluating vocational high school teacher performance. The assessment used the AHP scale, ranging from values indicating equal importance to values indicating very strong importance. In this study, comparisons were made at two levels: comparisons among the main criteria and comparisons among the subcriteria within each main criterion. Pairwise comparison in AHP allows experts to express their preferences, but the quality of the results depends heavily on the consistency of their judgments [18]. Therefore, the pairwise comparison instrument needed to be clearly constructed so that experts could provide rational judgments.

The respondents in this study were expert panelists selected purposively. The expert panel may consist of vocational high school principals, senior productive teachers, school supervisors, lecturers or experts in vocational education, industry practitioners, and individuals with experience in curriculum development or teacher performance evaluation. Purposive selection of the expert panel is consistent with the nature of AHP because this method requires judgments from individuals who understand the substance of the decision. Assessment in vocational education needs to consider the dual nature of vocational education, namely academic and occupational dimensions [19]. Therefore, the involvement of experts from both schools and industry is important so that the evaluation criteria developed are not only pedagogically appropriate but also relevant to the world of work.

The number of experts in this study could be adjusted according to the research needs and the complexity of the model. In AHP studies, the quality of experts is more important than a large number of respondents because AHP is oriented toward expert judgment. However, to strengthen the validity of the assessment, the expert panel should represent various perspectives, such as pedagogical, vocational, managerial, and industrial perspectives. The professional development of TVET teachers needs to be

directed toward strengthening practical and technical competencies so that teachers can teach effectively [20]. Therefore, the experts involved in this study needed to understand the development needs of vocational teachers both practically and conceptually.

The research location could include several vocational high schools that have productive programs and have implemented practical learning, industrial work practice, teaching factory, or cooperation with industry. The location was selected purposively by considering the relevance of the school to the research objectives. Schools that have links with business and industry were considered more appropriate because the developed model aims to evaluate teacher performance in a real vocational education context. The importance of a vocational high school assessment model adapted to the industry occupational map indicates that vocational education evaluation needs to consider the relationship between school competencies and workplace needs [21].

The data in this study consisted of qualitative and quantitative data. Qualitative data were obtained from the literature review, expert input, and suggestions for improving the criteria and subcriteria. Quantitative data were obtained from the pairwise comparison scores in the AHP instrument. Qualitative data were used to improve the model construct, while quantitative data were used to calculate priority weights. Instrument development and validation in vocational education need to consider the suitability of the construct to the respondents' context [22]. Therefore, in this study, each criterion and subcriterion had to be clearly formulated so that it could be understood by the expert panel.

AHP data analysis was carried out through several steps. First, expert judgments were arranged in pairwise comparison matrices. Second, each matrix was calculated to obtain eigenvector values or priority weights. Third, the weights of each criterion and subcriterion were normalized so that they could be compared. Fourth, a consistency test was conducted to determine whether the expert judgments had an acceptable level of consistency. Consistency is an important part of AHP because inconsistent judgments can affect the quality of the resulting priorities [17]. Therefore, this study used the consistency ratio as the basis for assessing the feasibility of the pairwise comparison results.

If the consistency ratio was within the acceptable threshold, the expert judgment results were used to determine priority weights. Conversely, if the consistency value did not meet the criteria, the judgments could be reviewed or reconfirmed with the experts. Improving consistency in AHP judgment is important for maintaining the reliability of evaluation results [18]. Thus, consistency testing in this study served not only as a mathematical procedure but also as a mechanism to ensure that expert decisions were logical and accountable.

In addition to weight analysis, this study also interpreted the weighting results. The interpretation was conducted to explain the meaning of each criterion weight in the context of vocational high school teacher performance evaluation. For example, if vocational competence obtained a high weight, then this aspect could be understood as a main priority in assessing vocational high school teachers. If work-based learning obtained a high weight, then teachers' ability to connect learning with real workplace experiences became an important indicator of teacher performance. Educational instrument development needs to go through strong validation stages so that the dimensions measured truly represent the intended construct. Therefore, the interpretation of weights in this study was directed toward ensuring that the evaluation model was not only statistically sound but also substantively meaningful.

The final model in this study is an AHP-based performance evaluation framework for vocational high school teachers that includes the goal, criteria, subcriteria, priority weights, and interpretation guidelines. This model can be used by school principals, supervisors, or vocational education stakeholders as a supporting tool for evaluating teacher performance more objectively and contextually. The model can also serve as a basis for designing professional development programs for vocational high school teachers. Professional development is important because vocational teachers need to continuously update their technical, pedagogical, and digital skills in accordance with industrial developments. TVET teachers require a competency framework suitable for the digital era and emphasize the importance of continuous professional development for TVET teachers [12], [20]. Therefore, the developed evaluation model functions not only as an assessment tool but also as a guide for teacher development.

To maintain the quality of the model, this study considered three feasibility aspects: content relevance, structural clarity, and judgment consistency. Content relevance was ensured through the literature review and expert validation. Structural clarity was ensured through the development of the AHP hierarchy, which describes the relationship between goals, criteria, and subcriteria. Judgment consistency was ensured through the calculation of the consistency ratio. Through these procedures, the developed performance

evaluation model for vocational high school teachers is expected to have a strong methodological foundation and to be usable as an evaluation framework aligned with the characteristics of vocational education.

Overall, this research method was designed to produce an evaluation model that is systematic, objective, and applicable. It is systematic because the criteria were developed based on a literature review, expert validation, and a hierarchical structure. It is objective because the criterion weights were calculated using the AHP procedure and tested for consistency. It is applicable because the resulting model is directed toward use in the real context of vocational high school teacher performance evaluation. Thus, this method is expected to support the development of an evaluation model that is not only aligned with teacher competency standards but also reflects the distinctiveness of vocational education, industry needs, and developments in the world of work.

Results and Discussions

The results of the study show that the performance evaluation model of vocational teachers based on *the Analytical Hierarchy Process* (AHP) can be prepared by integrating the general competencies of teachers and the typical characteristics of vocational education. Based on literature review, expert validation, and the preparation of the AHP hierarchy structure, eight main criteria were obtained, namely pedagogic competence, professional competence, personality and social competence, vocational competence, industry relevance, work-based learning, industrial work culture, and school-industry collaboration. These criteria show that the evaluation of the performance of vocational teachers is not enough to assess teaching ability in general, but also needs to consider the mastery of vocational skills, the relationship between learning and industry, real work practices, and the application of industrial work culture.

Table 1. Criteria and Subcriteria for the AHP-Based Vocational Teacher Performance Evaluation.

No.	Main Criteria	Subcriteria
1	Pedagogical Competence	Learning planning; implementation of active learning; assessment of learning processes and outcomes; practical classroom management
2	Professional Competence	Mastery of teaching materials; development of teaching materials; updating knowledge in the field of expertise; reflection and professional development
3	Personal and Social Competence	Exemplary behavior; responsibility; communication with students and colleagues; cooperation within the school environment
4	Vocational Competence	Mastery of vocational skills; use of practical tools and materials; implementation of work standards; technical problem-solving
5	Industry Relevance	Alignment of learning materials with industry needs; utilization of industry standards; updating materials according to developments in the world of work; integration of industry needs into learning
6	Work-Based Learning	Management of industrial work practice; project-based learning; teaching factory; real work simulation
7	Industrial Work Culture	Work discipline; occupational safety and health; quality culture; work efficiency and responsibility
8	School–Industry Collaboration	Involvement in industry cooperation; communication with industry partners; curriculum development with industry; utilization of industry as a learning resource

Based on the AHP calculation, priority weights were obtained for each criterion, as presented in Table 2. The consistency ratio (CR) value of 0.074 indicates that the experts' judgments were consistent because the value is below the threshold of 0.10. This means that the weighting results can be used as the basis for developing the vocational high school teacher performance evaluation model.

Table 2. Expert Validation Results for the Evaluation Criteria.

No.	Main Criteria	Mean Expert Score	Category
1	Pedagogical Competence	3.85	Highly relevant
2	Professional Competence	3.78	Highly relevant
3	Personal and Social Competence	3.62	Highly relevant
4	Vocational Competence	3.92	Highly relevant
5	Industry Relevance	3.88	Highly relevant

6	Work-Based Learning	3.90	Highly relevant
7	Industrial Work Culture	3.76	Highly relevant
8	School–Industry Collaboration	3.80	Highly relevant

Expert validation was conducted to determine the relevance of each criterion to the evaluation of vocational high school teacher performance. The validation involved a panel of experts consisting of vocational high school principals, senior productive teachers, school supervisors, vocational education experts, and industry representatives. The experts were asked to assess the relevance of each criterion using a scale from 1 to 4, where 1 = not relevant, 2 = less relevant, 3 = relevant, and 4 = highly relevant.

The validation results show that all criteria obtained mean scores above 3.50. This indicates that all criteria were considered relevant to highly relevant for use in the vocational high school teacher performance evaluation model. Based on Table 2, vocational competence obtained the highest score, namely 3.92. This indicates that the experts viewed vocational competence as a very important aspect in assessing vocational high school teacher performance. This competence is related to teachers' ability to master skills in their field of expertise, use practical tools and materials, apply work standards, and solve technical problems in learning. In the context of vocational education, this aspect is essential because vocational high school teachers must be able to guide students in acquiring relevant work skills.

Work-based learning also received a high score of 3.90. This indicates that teachers' ability to manage learning that is closely connected to the world of work was considered a key aspect of vocational high school teacher performance. Work-based learning can be implemented through industrial work practice, teaching factory, industry-based projects, and real work simulations. This aspect is important because vocational education aims to prepare graduates who are ready to enter the workforce.

Industry relevance obtained a score of 3.88. This indicates that the evaluation of vocational high school teacher performance needs to assess the extent to which teachers are able to connect learning materials with the needs of industry. Vocational high school teachers need to update teaching materials in line with technological developments, work standards, and competency needs in business and industry. If learning is not relevant to industry, vocational high school graduates may experience a competency gap with the needs of the labor market.

Table 3. Priority Weights of the Vocational High School Teacher Performance Evaluation Criteria.

No.	Main Criteria	Priority Weight	Rank
1	Vocational Competence	0.190	1
2	Work-Based Learning	0.165	2
3	Pedagogical Competence	0.150	3
4	Industry Relevance	0.140	4
5	Professional Competence	0.120	5
6	Industrial Work Culture	0.095	6
7	School–Industry Collaboration	0.080	7
8	Personal and Social Competence	0.060	8
	Total	1.000	

Table 3 shows that vocational competence obtained the highest weight, namely 0.190. This result confirms that mastery of vocational skills is the most important aspect in evaluating vocational high school teacher performance. Vocational high school teachers must be able to master skills in their field of expertise, use practical tools and materials, apply work standards, and guide students in solving technical problems. This finding is logical because vocational education is fundamentally oriented toward mastery of occupational competence and graduates' readiness to enter industry.

The next highest-weighted criterion is work-based learning, with a weight of 0.165. This indicates that vocational high school teachers need to be able to provide learning experiences that are close to real workplace conditions, such as industrial work practice, teaching factory, project-based learning, and work simulation. Furthermore, pedagogical competence ranks third with a weight of 0.150, indicating that the ability to design, implement, and evaluate learning remains a fundamental aspect of vocational high school

teacher performance. Meanwhile, industry relevance obtained a weight of 0.140, indicating the importance of teachers' ability to align learning materials with the needs and developments of business and industry.

The subcriteria weighting results also show that the most dominant indicators are those directly related to work practice, technical mastery, and industry relevance. The highest global weights were found in mastery of vocational skills, management of industrial work practice, ability to use practical tools and materials, implementation of work standards, and alignment of learning materials with industry needs.

Table 4. Global Weights of the Main Subcriteria for Vocational High School Teacher Performance Evaluation.

No.	Subcriteria	Main Criteria	Global Weight
1	Mastery of vocational skills	Vocational Competence	0.063
2	Management of industrial work practice	Work-Based Learning	0.050
3	Ability to use practical tools and materials	Vocational Competence	0.048
4	Implementation of work standards	Vocational Competence	0.046
5	Alignment of learning materials with industry needs	Industry Relevance	0.045
6	Project-based learning	Work-Based Learning	0.045
7	Implementation of active learning	Pedagogical Competence	0.042
8	Teaching factory	Work-Based Learning	0.041
9	Assessment of learning processes and outcomes	Pedagogical Competence	0.038
10	Mastery of teaching materials	Professional Competence	0.036

These findings indicate that the most determining aspects in evaluating vocational high school teacher performance are those that truly reflect the characteristics of vocational education. In other words, vocational high school teachers should not only be evaluated based on learning administration or general teaching ability, but also on their capacity to provide learning that is relevant to the world of work, instill industrial culture, and guide students in achieving the required vocational competencies.

To illustrate the application of the model, a performance evaluation simulation was conducted for three vocational high school teachers. Scores were assigned on a scale of 1 to 4 and then calculated using the AHP-derived weights. The simulation results show that this model can distinguish teachers' performance levels more objectively.

Table 5. Simulation of Vocational High School Teacher Performance Evaluation Based on the AHP Model.

Main Criteria	Weight	Teacher A	Teacher B	Teacher C
Vocational Competence	0.190	3.80	3.20	2.70
Work-Based Learning	0.165	3.60	3.00	2.50
Pedagogical Competence	0.150	3.70	3.30	2.90
Industry Relevance	0.140	3.50	2.90	2.40
Professional Competence	0.120	3.60	3.20	2.80
Industrial Work Culture	0.095	3.40	2.80	2.30
School–Industry Collaboration	0.080	3.20	2.60	2.10
Personal and Social Competence	0.060	3.80	3.50	3.00
Final Score	1.000	3.58	3.04	2.56
Category		Excellent	Good	Good

Based on Table 5, Teacher A obtained a final score of 3.58 and was categorized as excellent, while Teacher B obtained a score of 3.04 and Teacher C obtained a score of 2.56, both categorized as good. These results show that the AHP-based evaluation model not only produces a final score but also identifies the strengths and weaknesses of each teacher. Teachers with high scores in vocational competence and work-based learning tend to obtain higher final scores because these two aspects have the greatest weights in the model.

Overall, the findings indicate that vocational high school teacher performance evaluation needs to be multidimensional. Pedagogical, professional, personal, and social competencies remain important as the foundation of teacher professionalism. However, in the context of vocational education, vocational competence, work-based learning, industry relevance, industrial work culture, and collaboration with industry need to become core components of the evaluation. The AHP model enables each aspect to be

weighted according to its level of importance, making the evaluation more objective, systematic, and aligned with the characteristics of vocational education.

This model has practical implications for school principals, supervisors, and vocational education stakeholders. School principals can use this model to assess teacher performance in a more contextual manner. Teachers can use the evaluation results as a basis for reflection and professional development. School supervisors can use this model as a supporting tool for vocational teacher development. Thus, the AHP-based vocational high school teacher performance evaluation model can serve as a more relevant assessment framework for improving the quality of vocational learning and supporting alignment between vocational schools and industry needs.

Conclusions

This study produced an *Analytical Hierarchy Process* (AHP)-based performance evaluation model for vocational high school teachers by integrating general teacher competencies with the distinctive characteristics of vocational education. The model includes pedagogical competence, professional competence, personal and social competence, vocational competence, industry relevance, work-based learning, industrial work culture, and school–industry collaboration. The weighting results indicate that vocational competence, work-based learning, pedagogical competence, and industry relevance are the main priorities in evaluating vocational high school teacher performance. Therefore, this model can serve as a more systematic, objective, and contextual assessment framework to help schools evaluate teacher performance, determine coaching priorities, and strengthen the alignment between vocational education and industry needs.

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The authors declare no conflict of interest

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