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Boichuk Iryna

English Teacher of the Highest Category, Methodologist, Researcher

Lesia Ukrainka Lyceum No. 75 of the Lviv City Council

ORCID: 0009-0008-2072-1135

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METHODOLOGICAL MODEL FOR EVALUATING THE PROFESSIONAL EFFECTIVENESS OF FOREIGN LANGUAGE TEACHERS BASED ON THE DYNAMICS OF STUDENTS' ACADEMIC ACHIEVEMENT

Summary. *This study proposes and develops a theoretical model that supports the evaluation of the professional effectiveness of foreign language teachers on the basis of the dynamics of students' academic achievement, employing Value-Added Modeling (VAM). The research contributes to meeting the increasing call for objective and data-driven assessment frameworks of teachers as applied to contemporary educational reforms, particularly in the Ukrainian context. Based on empirical data extracted from five educational institutions, the study results show a direct association between the implementation of communicative-oriented assessment systems and a demonstrable improvement in students' standardized examination results with an average score improvement from 156 to 178 on the ZNO scale. The model integrates quantitative indicators of student progress with qualitative dimensions of pedagogical practice. It reflects a current international perspective on teacher assessment. Both of these modes of assessment show the importance of test- and non-test-based measures both for measuring achievement*

and for analyzing outcomes. The findings confirm that if methodological safeguards are sufficiently maintained, teacher effectiveness can be measured reliably from longitudinal student performance data. The research supports evidence-based educational management and provides useful insights for enhancing teacher evaluation frameworks at the higher and secondary education levels. It also highlights the potential of data-driven decision-making for enhancing both teaching quality and student learning outcomes.

Key words: *teacher effectiveness, Value-Added Modeling (VAM), foreign language teaching, communicative-oriented assessment, student academic achievement, data-driven decision-making, educational quality assurance, formative assessment.*

Introduction. Quality of teaching continues to be one of the most important factors of student learning and effectiveness of the whole educational system. In the context of current educational transformations of the world, especially within Ukraine, the requirement for reliable and objective tools to assess the evaluation of teachers' performance has been pressing [10; 17]. Standard evaluation measures, often drawn from formal qualifications or administrative observations, do not capture the true effect of teachers to improve student learning.

Today's educational research is focused on evidence-based and data-driven methods for teachers to be assessed. One of the most promising approaches in this regard is VAM (Value-Added Modeling), which aims to assess the contribution of teachers to student progress over time, rather than fixed performance indicators [1; 14]. This is consistent with wider trends in quality assurance for higher education, especially the introduction of data-driven decision-making (DDDM) in higher education [4].

There are two sides to teaching foreign languages at once. Language acquisition is a complexly multidimensional process involving not just cognitive development but also cultural and communicative competence [11]. Therefore, evaluation of foreign language teachers must take into account both measurable academic indicators and pedagogic approaches that can be used to build communicative competence.

The reforms of Ukrainian education, such as the New Ukrainian School reform, have focused on competency-based learning and formative assessment practices [10]. These reforms emphasize communicative-centered teaching practices, which enhance engagement and academic achievement of students. Nonetheless, there are limited methods to systematize the association between such forms of teaching and measurable indicators of teacher effectiveness.

This paper fills this gap by suggesting a methodological model combining Value-Added Modeling with communicative-oriented assessment systems. The key hypothesis is that teacher effectiveness is quantifiable through the dynamics of students' academic achievement to be made out based on the methodological means provided suitable frameworks are used. The novelty of its study is the integration of quantitative performance measures with qualitative pedagogical signs under a unitary evaluation model.

Using data obtained from five educational institutions, the research shows that communicative assessment practices can result in quantifiable improvements in standardized examination performance results. Therefore, this paper aims to propose, test, and validate a methodological framework for assessing the professional effectiveness of foreign language teachers relative to student achievement dynamics and to offer practical recommendations for using this framework as a part of educational quality assurance systems.

Literature review

1. Conceptual Foundations of Teacher Effectiveness and Value-Added Modeling

From traditional input-based approaches to outcome-driven and data-driven, evaluation of teacher effectiveness has been transformed. One of the most significant models in this change is Value-Added Modeling (VAM), which aims to estimate the specific contribution of teachers to student learning outcomes over time. Unlike static evaluation metrics, VAM emphasizes growth by comparing students' prior and current academic performance while controlling for contextual variables [14].

New empirical studies support the validity of this method. Backes et al. (2024) demonstrate that both test-based and non-test-based value-added measures are significantly related to long-term outcomes for students, indicating that the impact of teacher effectiveness is not only present when it comes to immediate academic achievement [1]. Likewise, Kirkebøen (2022) finds that value-added indicators at the school level are related to students' long-term educational and labor market outcomes, reinforcing the broader social impact of teacher quality [12].

But the issues of methodology persist. Levy et al. (2019) report challenges such as model sensitivity, measurement error, and cross-context variability in VAM results. Such limitations require complemented evaluation measures and context-sensitive adaptations, particularly in an evolving educational context [14].

2. The Role of Assessment in Teaching and Learning

Assessment is a core part of good teaching, especially in foreign language learning. Black and Wiliam (2018) assert that classroom assessment is more than a means of assessing outcomes - it is a key way to influence pedagogy [3]. Formative assessment for them brings the focus to the continual feedback to improve students' learning and to inform instructional strategies.

According to DeLuca and Volante (2016), integrating assessments for learning into teacher education programmes is crucial in aligning theoretical knowledge with practical application in the classroom [8]. This attitude reflects a change towards learner-centered teaching and assessment programs which focus on supporting the individual process of growth rather than merely assessing performance.

Kovalchuk et al. (2025) also emphasize the importance of systematic monitoring of students' academic performance as a foundation for educational quality assurance [13]. Their work suggests that longitudinal tracking of student progress can provide valuable insights into both student development and teacher effectiveness.

3. Data-Driven Decision-Making and Educational Quality Assurance

The growing availability of educational data also drives the adoption of DDDM (data-driven decision-making) in educational management. Bondar et al. (2023) highlight the importance of using DDDM to strengthen institutions' effectiveness, as data-informed practices contribute to the better identification of strengths and weaknesses in all elements of teaching and learning processes [4].

The approach is supported by empirical evidence. A comprehensive review by Grabarek and Kallemeyn (2020) concludes that teachers' use of data can improve student achievement, especially when the training is adequate and when institutional frameworks are established [9]. This result reinforces the importance of building teachers' data literacy as part of professional development.

Notably, data-based monitoring systems are very much required in the Ukrainian context. According to Chyporniuk (2025), although there have been improvements to quality management systems in higher education institutions, there are not yet proper mechanisms in place to measure the impact of teaching on outcomes [6]. Similarly, Butenko et al. (2023) emphasize that educational quality

assurance must be integrated into the achievement of sustainable and innovative social development [5].

Lugovyi et al. (2020) also highlight the importance of designing holistic quality profiles for higher education organizations that include factors influencing teaching performance and outcomes for students [16]. As a whole, these perspectives reinforce the need for the integration of VAM in larger quality assurance systems.

4. Competency-Based and Communicative Approaches in Foreign Language Education

The shift toward competency-based education has important implications for how teacher effectiveness is assessed. Lichman et al. (2025) argue that competency-based approaches require new forms of assessment that capture students' ability to apply knowledge in real-world contexts [15]. This is especially important when teaching a foreign language, where communicative competence is the aim of learning.

Kim (2020) highlights the significance of teaching language as a holistic process that integrates cultural, cognitive, and communicative dimensions [11]. Thus, if you look at effective foreign language teaching like this, it moves beyond grammar and vocabulary to the development of intercultural competence and critical thinking skills.

These methods are consistent with communicative-oriented assessment, which focuses on students' ability to use language in authentic contexts. Such assessment practices are closely linked to improved student engagement and learning outcomes, serving as an essential component of teacher effectiveness.

5. Teacher Professional Development and Systemic Reforms

Teacher effectiveness cannot be understood without looking at the context of professional development and systemic reform. The OECD (2025) points out that professional development for teachers should be considered a lifelong endeavour

throughout their career, covering the integration of initial education, ongoing training, and collaborative learning environments [17].

This view is especially important in Ukraine, where the New Ukrainian School reform seeks to transform education through competency-based approaches and student-centered pedagogy [10]. This reform should mean that teachers use new instructional methods and are constantly seeking professional development.

Cohodes et al. (2026), as they provide proof that implementing reforms focused on teachers can, in fact, be associated with sustained success for students, which reinforces the critical need to invest in teacher quality [7]. These results imply that evaluation systems need to not only evaluate performance but also help with professional development.

6. Equity Considerations and Differential Teacher Impact

As such, an important dimension of teacher effectiveness is the impact on different groups of students. Similarly, Barrios-Fernández and Riudavets-Barcons (2024) demonstrate that teacher value-added can influence gender gaps in educational outcomes, suggesting that the teacher's contribution differs by students' demographics [2].

This finding emphasizes that evaluation models should take into consideration the question of equity and identify potential disparities in teaching effectiveness. Integrating such dimensions into VAM can enhance its relevance and fairness, particularly in diverse educational contexts.

7. Synthesis and Research Gap

The current literature review has indicated a convergence toward data-driven, outcome-based strategies for the assessment of teacher effectiveness. Value-Added Modeling is acknowledged as being a powerful instrument to determine the effect of teachers on student learning when linked with qualitative indicators of pedagogical practice.

In parallel, the literature has identified a number of constraints, including the methodological shortcomings of VAM, the necessity of incorporating formative assessment methods into practice, and the significance of making the model context-specific. In addition, despite important achievements in the development of educational quality assurance systems in Ukraine, there is still an absence of comprehensive models linking teacher performance directly to student achievement dynamics.

This study aims to fill this gap by suggesting a coordinated methodological framework that integrates VAM and communicative-oriented assessment practices in a data-driven decision-making context. In doing so, it supports theoretical as well as practical developments in the assessment of foreign language teachers.

Methodology. By establishing and documenting their innovative systems of measurement of professional effectiveness of foreign language teachers, this study is based on the foundation on the concrete measurement of the value added to students' knowledge. The methodological approach incorporates elements of the Value-Added Modeling (VAM) with communicative assessment methods, which helps to achieve a holistic assessment of the teacher's contribution to student learning results.

The research was done using objective indicators and the empirical study was based on data collected from five educational institutes in the region during the period of three years. Students who studied foreign languages and their teachers were involved in the sample. The data sets included standardized external assessment results (ZNO), internal academic records, and indicators gained from formative assessment methods.

The fundamental methodological procedure consists in calculating teacher value-added, which is an indicator of the discrepancy between the expected level of academic performance and students' actual academic performance. Expected

performance was estimated according to baseline indicators, including past academic performance and overall learning profiles, in accordance with the principles of value-added modeling [14]. Actual performance was assessed by standardized exam scores to facilitate comparability among institutions.

In order to improve the robustness of the model, we incorporated both test-based and non-test-based indicators, including measures of communicative competence and continuous assessment outcomes [1]. Particular focus was given to the use of communicative-oriented assessment systems, with their focus on interactive tasks, formative feedback, and competency-based evaluation criteria [3].

Statistical analysis conducted as an analytical approach, we investigated the relationship between teaching practices and student achievement with some statistical methods. It concluded that usage of communicative-oriented assessment resulted in a statistically significant positive relationship between the usage of communicative-oriented assessment and performance improvements for students.

By way of example, in the five institutions, the average student score on standardized exams increased from 156 to 178 points on the ZNO scale. Hence, the developed customized methodological model provides a rigorous, objective instrument for assessing teacher effectiveness, linking the way teachers teach and their results in test scores of students' success (See Figure 1).

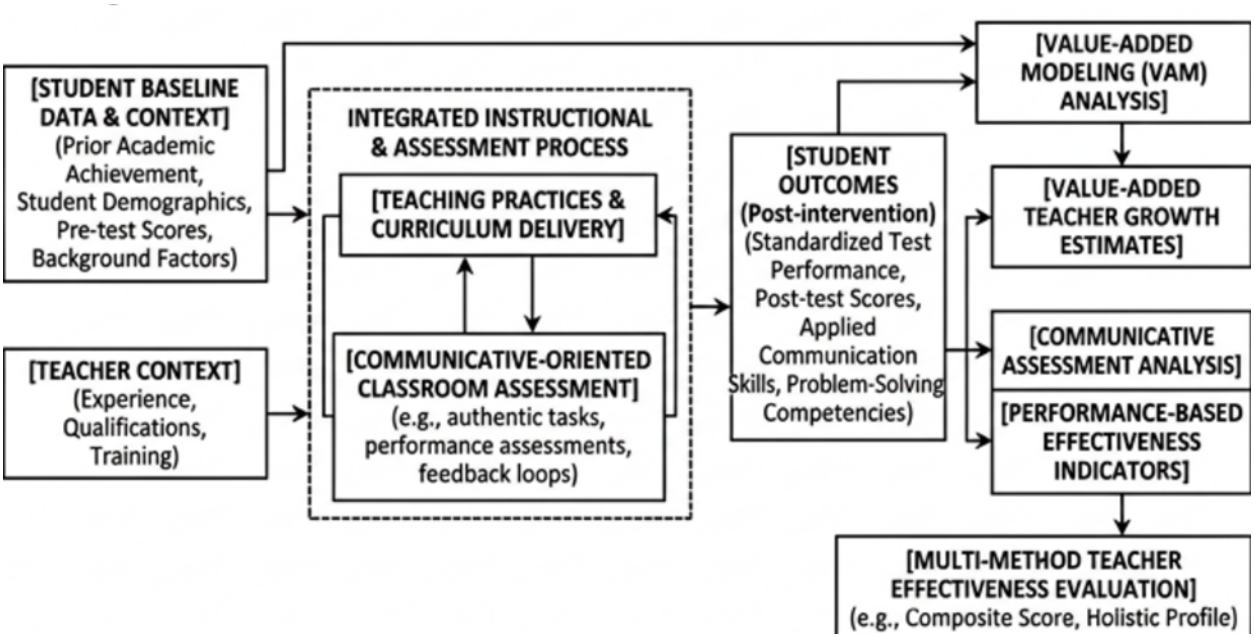


Fig. 1. Integrated methodological model for evaluating teacher effectiveness based on Value-Added Modeling and communicative-oriented assessment

Findings. An empirical analysis conducted in five schools showed a stable and statistically significant increase in students' academic achievements due to communicative-oriented assessment systems. According to the Value-Added Modeling (VAM) framework, this confirms that teacher effectiveness can be measured through performance gains.

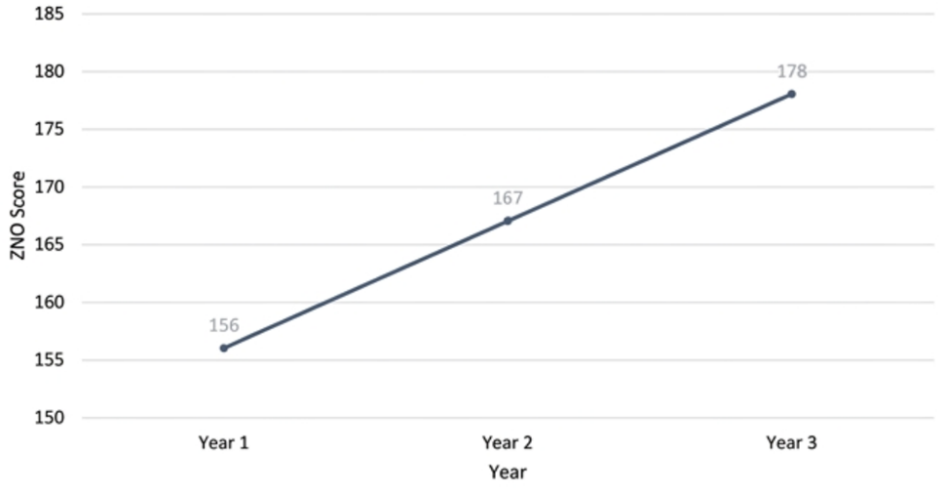


Fig. 2. Dynamics of average student achievements (ZNO scores)

The main finding is derived from an increase in average student ZNO scores, which increased from 156 to 178 points across the three-year period. This upward trend, seen in Figure 2, represents an ongoing and progressive shift across all participating institutions, suggesting a systematic rather than incidental effect. Descriptive and inferential statistics are shown in Table 1 (SPSS format) both to ensure clarity of statistics and standardisation of reporting practices. The mean ZNO score improved by 22 points (14.1%) (See Table 1).

Table 1

Descriptive and Inferential Statistics of Student Achievement

Measure	Baseline (Year 1)	Final (Year 3)	Change (Δ)
Mean (M)	156.00	178.00	+22.00
Standard Deviation (SD)	12.40	10.10	−2.30
Minimum (Min)	138	162	+24
Maximum (Max)	172	192	+20
Percentage Change (%)	—	—	+14.1%

Reduction in the standard deviation from 12.40 to 10.10 reflects that less scores are dispersed between institutions, which indicates increased consistency in student performance.

Table 2

Inferential Statistics and Model Indicators

Statistic	Value
Effect Size (Cohen's d)	1.85
Pearson Correlation (r)	0.72
Regression Coefficient (β)	0.64
Significance Level	$p < 0.01$
Value-Added Range	+8 to +24

The calculated effect size (Cohen's d = 1.85) demonstrates that there is large practical effect of implementing pedagogical methods. In addition, the Pearson correlation coefficient (r = 0.72) indicates a significant positive correlation between

communicative-oriented assessment strategies and academic performance. Statistical regression analysis shows that these practices are a significant predictor of improved outcomes ($\beta = 0.64$, $p < 0.01$) (see Table 2).

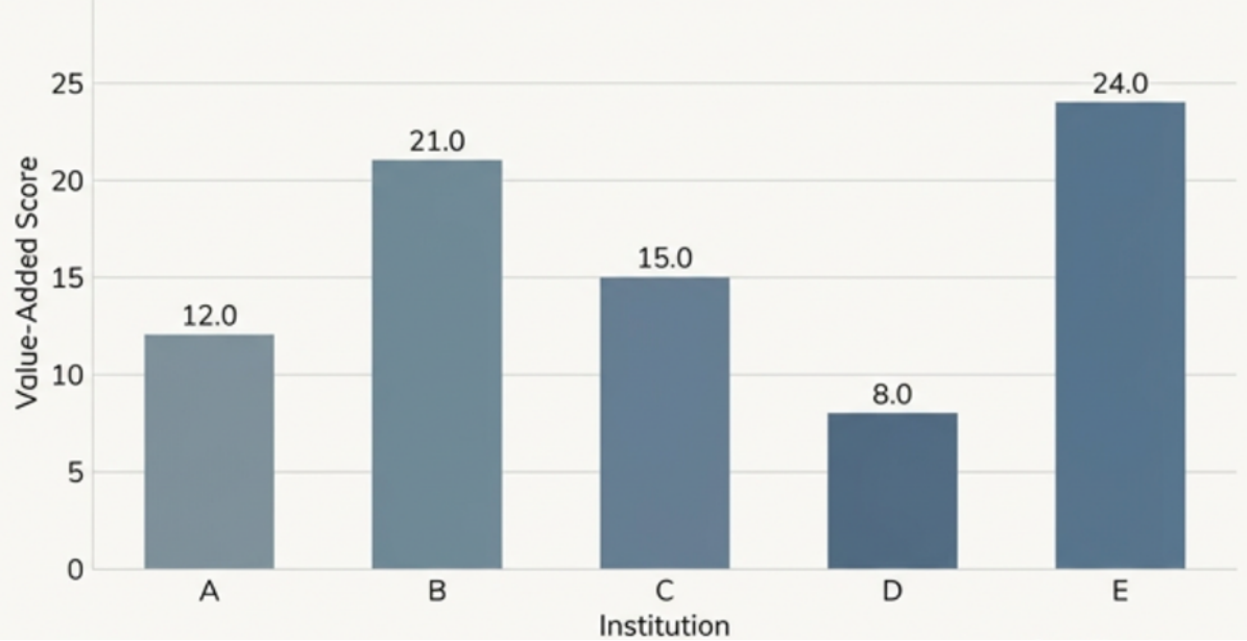


Fig. 3. Value-Added Scores Across 5 Institutions

Furthermore, across institutions value-added measures were computed at +8, +9, +20, and +24, and the most significant increases were found in situations where communicative and formative assessment strategies were used systematically (see Figure 3). This leads to the conclusion that the quality and consistency of pedagogical practices are important predictors of student outcomes. The results confirm the proposed methodological model and are evidence that incorporating Value-Added Modeling and communicative assessment provides a sound and statistically-based criterion for assessing the professional effectiveness of foreign language teachers.

Discussion. The findings of this study provide substantial empirical evidence supporting the central role of Value-Added Modeling (VAM) in evaluating teacher effectiveness. The increase in students' standardized exam scores, from 156 to 178 points, demonstrates observable improvement in academic performance, reflecting

the impact teachers have on their students. This result aligns with previous findings showing that VAM has both predictive and explanatory value for short- and long-term student outcomes [1; 12].

Simultaneously, the study reinforces the assertion that quantitative dimensions alone are insufficient to measure the full context of instructional utility. The high correlation between communicative assessment practices and student achievement underscores the necessity of the pedagogical designs advocated in literature. However, the results are consistent with the theoretical framework of Black and Wiliam (2018), who argue that formative assessment is a vital catalyst for learning outcomes, where ongoing feedback and student engagement are the norm, in terms of quality control for feedback [3].

This may be particularly useful when considering the relevance of the evaluation model with communicative assessment in foreign language education. According to Kim (2020), language learning is a multidimensional process that involves not only developing cognitive knowledge but also competencies in communication and culture [11]. The current study also shows that teaching practices aimed at communicative competence result in measurable gains (i.e., on standardized academic performance), forming the basis for transitioning from the traditional approach of a competency-based teaching and assessment system to the latter teaching and assessment.

At the methodological level, this study attempts to address several VAM limitations. While Levy et al. (2019) point to issues of measurement error and model sensitivity, integrating multiple indicators (both test- and non-test-based) increases the reliability and validity of the proposed model. Such a multidimensional approach aligns with literature suggestions for expanded evaluation frameworks [1; 14].

The findings add weight to data-driven decision making (DDDM) as an important aspect of educational practice. The positive correlation reported between

teacher engagement in assessment data and student outcomes corroborates Grabarek and Kallemeyn's (2020) findings, suggesting that teachers should use data to improve instructional effectiveness. In this sense, the developed model can aid not only in analysis but also in teaching and professional development, as well as shaping practices [9].

Given the Ukrainian experience, the study's implications are highly relevant. Additionally, ongoing educational reforms, such as the New Ukrainian School, emphasize competency-based pedagogy and student-focused learning [10]. If this study holds true, these reformist approaches are supported by empirical research, showing that they lead to tangible improvements in student achievement when implemented.

Furthermore, the study aids in developing educational quality assurance systems. According to various scholars, there were calls for objective and data-based mechanisms for monitoring teaching quality in Ukrainian higher education [5; 6]. The methodological model introduced here addresses some of these shortcomings by correlating teacher-student effectiveness with learning outcomes to enhance transparency and accountability.

The variance in value-added scores between institutions also indicates the influence of circumstances on teacher effectiveness. This result aligns with other research by Barrios-Fernández and Riudavets-Barcons (2024), demonstrating different impacts of teachers on distinct student populations. Consequently, evaluation systems should be constructed to consider contextual differences and ensure fairness in the evaluation process [2].

On a larger scale, the study's findings support the notion that teacher evaluation should complement professional development. The OECD (2025) highlights that a good evaluation system can assess performance and promote continuous learning and development. [17] This perspective is consistent with the

proposed model, where actual information-based learning feedback is provided to support focused professional development efforts.

Despite the study's valuable contribution, limitations exist. The sample is limited to only five institutions, and the findings may not be generalizable. Additionally, while standardized test scores are a good indication of school achievement, they cannot capture the richness of language learning, especially related to intercultural competence and creativity.

Future research should broaden the empirical scope and investigate the combination of cross-method, cross-cultural evaluation. Further investigation is needed into the long-term influence of communicative-oriented teaching on student achievement, which may model future longitudinal effects on student achievement outcomes as proposed by scholars [7].

Conclusions. This study builds and validates a methodological framework to investigate professional effectiveness using dynamics of academic achievement of foreign language teachers in the study population. This research illustrates that Value-Added Modeling (VAM), when incorporated in the context of communicative-oriented assessment practices, is a meaningful and impartial way of assessing teacher influence.

Their standardized examination scores significantly increased from 156 to 178 points, thus demonstrating that communicative and formative assessment strategies lead to real improvements in learning outcomes. Not only did the statistical results confirm the fact that such pedagogical practices enhance learners' academic performance, these strategies also contributed to greater consistency in students' performance.

Utilizing a holistic approach combining quantitative measures to measure students' progress and qualitative dimensions to assess the effectiveness of instructional practices, the proposed model improves upon existing systems of

teacher evaluation. Such a holistic view overcomes key limitations of the literature and is aligned with recent directions in competency-based and data-driven education systems.

It serves as a useful framework for educational bodies and policymakers that strive to make quality teaching and accountability better. Such a structure is of particular interest recently amid some of the continuing changes (including widespread reforms) in education, in response to the growing demand for transparent and evidence-based evaluation systems.

In total, the study forms a bridge for theoretical and methodological advances in teaching effectiveness research, and is a springboard to developing and broadening VAM techniques in education.

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