JOURNAL OF RESEARCH STUDIES IN ENGLISH LANGUAGE TEACHING AND LEARNING

To cite this article in APA 7th style:
Al Inzi, A. (2025). Inferring constructs of effective teaching from classroom observations. *Research Studies in English Language Teaching and Learning*, *3*(2), 381–396. https://doi.org/10.62583/rseltl.v3i2.82

More Citation Formats

For more citation styles, please visit: https://rseltl.pierreonline.uk/

This article is published by Pierre Online Publications Ltd, a UK publishing house.

ISSN (online): 2977-0394

KEYWORDS
effective teaching, classroom observations, pedagogical competence, principal component analysis, EFL instruction

Inferring constructs of effective teaching from classroom observations

Adel S. Al Inzi[1]

[1]*Department of English Language and Literature, College of Arts and Humanities, Imam Abdulrahman Bin Faisal University, Dammam, Saudi Arabia.*

Abstract

This study examines effective instructional constructs grounded in Saudi Arabian English language teaching observations using Principal Component Analysis (PCA) that identifies four dimensions: adaptability, student engagement, instructional approaches, and instructional environment organisation. These dimensions together explain 62.32% of instructional practice variance and establish the multidimensionality of effective instruction. Dimension 1, contributing the most to variance (19.18%), encapsulates instructional structure and classroom management. These measures capture student engagement, the use of dynamic teaching strategies, and responsiveness to student diversity—crucial elements of pedagogical competence in English as Foreign Language (EFL) settings. Following models such as the Classroom Assessment Scoring System (CLASS) and the Framework for Teaching (FFT), the findings validate the critical need for robust teacher evaluation systems and related professional development. Based on systematic observation in the classroom and quantitative analysis, this study offers valuable lessons for teachers, school leaders, and policymakers who want to enhance instructional quality and student achievement.

Introduction

Effective instruction is a backbone of educational success, impacting students' achievement, motivation, and long-term educational development. In its multidimensional and contextual nature, defining and operationalising effective instruction continues to represent a challenge, with its elusive nature and susceptibility to a range of instruction and contextual factors adding to its complexity. Attempts at defining instruction have matured over years, with increased concern for creating multi-faceted evaluation frameworks. These frameworks attempt to identify key constructs of instruction underpinning effective practice, shedding lights onto instruction and its character for effective instruction. Familiarity with such constructs is particularly significant in modern educational settings, with teacher accountability, teacher development, and pupil performance inextricably linked (Gitomer et al., 2014; Gordon, et al. 2006). Recent work in teacher evaluation frameworks, such as Classroom Assessment Scoring System (CLASS) (Hamre et al., 2012) and Framework for Teaching (FFT) (Danielson, 2011), have facilitated developing a sophisticated character of instruction and its dimensions. These frameworks emphasise a range of dimensions, such as instruction, pupil motivation, adaptability to learner diversity, classroom organisation, and instructional delivery. Little, however, is known about how such dimensions interrelate and, together, characterise effective instruction. Despite improvements in big studies, such as in the case of the Understanding Teacher Quality (UTQ) project, in investigating such dimensions empirically, additional studies must contextualise such constructs in individual educational settings and subjects. For EFL instruction, practice is most critical in overcoming language mastery and matter delivery, and EFL instructors have to work in a sophisticated pedagogical environment, balancing language competency, motivation, and cultural factors (Panev & Barakoska, 2015; Firman et al., 2019). In creating such tension, a demand for isolating constructs of effective instruction in EFL settings arises, and through such, instructors and educational leaders can develop specific teacher training programs for developing competencies and enhancing educational achievement.

The present study looks at constructs of effective instruction through observations in Saudi Arabian EFL classes with instructors of English language. With Principal Component Analysis (PCA), the present study identifies significant dimensions explaining variance in instruction and contributing to a general picture of instruction quality. PCA is a powerful tool in methodologies for unearthing latent constructs, and with such a tool, complex datasets can be reduced to meaningful factors (Jolliffe & Cadima, 2016). With such a tool, through employing it, the present study to bridge the gap between theoretical constructs of instructional quality and classroom practices. Contributions of teacher development, evaluation, and accountability form part of a larger discussion in educational studies. By isolating significant constructs of effective instruction,

the present study generates actionable information for instructors, school leaders, and educational policymakers interested in instruction improvement in terms of instruction quality. Besides, the present study re-emphasises utility in instruction evaluation through observations and underlines contribution of statistics in educational studies. Ultimately, the present study aims at attaining a deeper level of understanding in effective instruction and inform interventions for supporting instructors in attaining instruction excellence in practice.

Literature Review

Teacher Professional Development and Pedagogical Competence

Professional development for teachers is important in preparing instructors with competencies and skills for managing complications in modern-day instruction. Successful instruction entails a combination of expertise in subjects and a variety of competencies under categories such as pedagogical, personal, social, and professional (Suyanto & Jihad, 2013; Hakim, 2015). Not only can these competencies enable instructors to deliver in terms of performance, but they contribute in a meaningful way towards enhancing educational performance. Building and defining teacher quality constructs have gained significant prominence in present teacher accountability policies. Policies such as state-imposed policies for teacher evaluations through individual performance assessments for pay and retention have stimulated state adoptions (e.g., through programs such as the Race to the Top grant competition). Included in these evaluations are tools for measuring instruction, teacher expertise, pupil performance, and work quality (Bill and Melinda Gates Foundation, 2013). There is, however, little in terms of a concrete definition of "teaching quality" and its measurement through such assessments. Empirical studies have concluded that most instructors' instruction is at best at a moderate level (Bill and Melinda Gates Foundation, 2013; Gitomer et al., 2014), and pupil achievement in America is below national and international standards (Peterson et al., 2011). The reform of teacher evaluation aims at improving teacher quality at a school level. However, whether teacher constructs of teacher quality are in-born or can be developed through teacher development will have a significant impact in shaping evaluation system design (Gordon, et al., 2006). To respond to this, in the Understanding Teacher Quality (UTQ) study, teacher constructs of teacher quality were measured through an analysis of over 450 U.S. middle school teachers' practice through analysis of four standardised tools—CLASS (Hamre et al., 2012), FFT (Danielson, 2011), PLATO (Grossman et al., 2010), and MQI (Learning Mathematics for Teaching Project, 2006)—to assess a variety of dimensions of instruction, such as classroom management, motivation of students, and approaches in subjects.

The UTQ study's analysis involved rating video-recorded lessons segmented into over 6,000 segments, rated by 11 trained and subject-matter expert raters. Hierarchy in the data, together with any mistakes in raters, lessons, and sections, presented significant analysis challenges (McCaffrey et al., 2015). Bayesian hierarchical EFA models addressed such complications, unmixing teacher-level variation and measurement mistakes. Validity for underlaying constructs of observation tools, and shared and unique dimensions of teacher quality in terms of theoretical frameworks, was supported in the analysis. Besides, such constructs predicted teacher evaluations of knowledge and impact on students' achievement, offering actionable information for effective instruction. Identification of such constructs identifies a critical imperative for teacher development in developing competencies such as pedagogical expertise, a pillar for effective instruction. Pedagogical competency entails an individual's ability for instruction and instruction processes management, learners' requirements, planning effective instruction, performance evaluation, and developing academic and non-academic development (Suyanto & Jihad, 2013; Hakim, 2015). Successful pedagogical approaches involve instruction accommodation for learners with diversity and use of assessments for reflective feedback in developing instruction effectiveness.

Pedagogical Competence and Professional Growth

The EFL teacher faces a double challenge in becoming a pedagogue in balancing expertise in a specific field and language instruction. Microteaching, lesson studies, and in-service training programs have been effective in overcoming such a challenge. Sumani and Arifin (2017) demonstrated that microteaching simulations in a classroom build evaluation and classroom management skills in pre-service teachers. Similarly, Sulistiyo and Haswindy (2018) stressed lesson studies in developing collaborative learning and strengthening teaching competencies, with in-service training programs offering continuous mastery over both field and pedagogy. Technology integration complements pedagogical development even more. Firman et al. (2019) supplemented that EFL teachers employing tools such as computers, projectors, and web sources could respond to students' variegated requirements with ease. Teachers who performed studies in the classroom discovered and overcame obstacles in instruction, creating flexible and adaptable spaces for learning. That conforms with Panev and Barakoska's (2015) argument that teacher competencies must develop in a continuous state through training and adopting new approaches.

Implications and Future Research

The effectiveness of methodologies such as microteaching, lesson studies, action research, and technology integration in strengthening instruction is corroborated through findings in previous studies. These approaches allow instructors to adapt to changing educational needs and enable long-term teacher

development. Targeted teacher development programs for supporting instructors in utilising effective instruction techniques are significant in providing assurance that instructors can implement effective instruction techniques. On a strong platform of such a background, in the current study, secondary EFL instructors' application of pedagogical competencies in educational standards is analysed. In an endeavour to make theoretical contribution towards developing pedagogical competency and providing guidance for teacher expertise improvement, through effective techniques, the current study aims to make a contribution towards EFL instruction and present a blueprint for teacher professionalism maintenance.

Q1: What key constructs of effective teaching can be identified through classroom observations?
Q2: How do observed teaching practices predict student engagement and motivation?

Methodology

Participants

The primary participants who were observed were 20 EFL teachers who were selected on the basis of teaching experience, professional training, and availability throughout the observation period. They were drawn from diverse instructional backgrounds and teaching years' experience from early-career teachers to veteran teachers. Eighty EFL learners were also present in the classrooms during these observations. Although not participants themselves, their engaged presence in the process of learning significantly increased the ecological validity of the collected data. Their presence allowed researchers to evaluate actual classroom dynamics and interactions as they unfolded in real-time, which increased the richness and usefulness of the instructional analysis. They were all non-native English speakers between the age range of 18 and 25 who were enrolled in mandatory English language courses within the academic programs. They were from diverse academic fields like business, engineering, education, and humanities and therefore offered diverse learner backgrounds and teaching exposure. Proficiency levels ranged from intermediate to upper-intermediate levels according to institutionally administered placement tests and academic records. All participants were informed about the purpose and procedures of the study, assured that the process would be kept confidential, and signed written consent. Data about participants' previous exposure to English teaching, tutoring support, and learning styles were also gathered. These data contextualised observational findings and assisted in providing the complete picture of instructional practice in Saudi EFL classrooms.

Design

This study employed the non-experimental, cross-sectional observational approach in order to analyse effective teaching constructs in EFL classrooms within the setting of real-life instructional contexts. The primary purpose was to observe naturally occurring teaching practices and identify the instructional dimensions that lie beneath them by combining systematic data collection and advanced statistical analysis. Systematic observation protocol was developed based on validated instructional models in order to measure classroom management dimensions, teacher-student interaction quality, instructional delivery modes, feedback systems, and responsiveness towards individual differences among learners. Observations were conducted across ten consecutive weeks where each of the 20 teachers was observed three times, providing a total of 60 lesson observations. Each observation lasted approximately 45 minutes and was unobtrusive in nature in order to ensure authenticity within the classroom. Observers rated the observed behaviours using the 5-point Likert scale while concurrently taking fieldnotes for recording contextual factors that cannot be numerically measured. All observers underwent intensive training and calibration exercises involving inter-rater reliability testing using Cohen's Kappa that resulted in high agreement score of 0.87. This strict approach enabled the collection of high-quality, multi-dimensional data that enabled the identification of instructional constructs beneath using Principal Component Analysis.

Procedure

The research proceeded in three successive stages: preparation, collection, and analysis.

Preparation Phase

For this, an observation protocol for routine checking of effective instruction critical dimensions was developed. Criteria for effective instruction have been derived through effective pedagogy studies, with a preference for observable and measurable teacher actions. 10 instructors were pilot-tested with a consideration for creating a conclusive protocol with dimensions including organisation in-class, teacher and pupil relations, instruction approaches, and responsiveness towards students' requirements in view of pilot feedback, and refinement in terms of observation criterion relevance and intelligibility. Observers, who have a background in instruction in English language and have received proper training, participated in practice observation, video recordings, and workshop sessions in an attempt to make them uniform in rating. Inter-rater agreement between observers was measured with Cohen's Kappa, and high agreement of 0.87 was attained.

Data Gathering Phase

Data collection spanned two months, with three discrete lesson observations for each teacher during that timeframe. Observers visited at times and subjects not concurrent with one another in an effort to gain a balanced picture of practice. Observers visited for about 45 minutes at a time and in a nonintrusive manner in an effort to maintain a view of a naturally occurring environment in a classroom. Observers rated practice for each of the indicators in the protocol with a 5-point Likert scale. Qualitative fieldnotes were taken in an effort to contextualise numerical data and gain a picture of nuanced practice not captured in numerical form in fieldnotes. Observers were accompanied with video recorders for use with fieldnotes and to allow post-observation analysis.

Data Analysis Phase

The aggregated information was then entered into SPSS for initial processing. Descriptive statistics were calculated in an effort to represent observed instruction behaviours and obtain a general view of the distribution of information. BEFA was then conducted with expert software for discovering concealed constructs for noticed behaviours. By utilising such an approach, the current study could make inferences about salient aspects of effective instruction in English and make allowance for complex interdependencies between factors. The SPSS software was subsequently run in an endeavour to validate constructs generated via BEFA through confirmatory factor analysis (CFA). Construct reliability for all of them was gauged with high agreement level through Cronbach's Alpha, with values consistently over 0.80. Model fit, in turn, was gauged with goodness-of-fit indices, such as Comparative Fit Index (CFI) and Root Mean Square Error of Approximation (RMSEA).

Materials

The study utilised a structured observation protocol for its application in assuring uniformity and objectivity in its instruction practice evaluation. Instruction strategies, feedback mechanism, adaptability, organisation in the classroom, and dynamics in terms of engagement, with each one analysed into its respective measurable indications, made its protocol. SPSS software facilitated processing of data, with a contribution in its application for confirmatory analysis and for use in descriptive statistics, and Bayesian-specific software for complex modelled analysis through BEFA. Manuals, video exemplars, and guides for scoring facilitated acquainting observers with observation standards. Video recorders and supporting documentation, including IRB approval and consent forms, facilitated assuring the study process' reliability and ethical integrity. All these materials facilitated assuring a high level of intensity and formality in studies.

Results and analysis

The following Table 1 is a summary of a Principal Component Analysis (PCA) performed in an endeavour to unveil factors explaining variance in the data. Initially, eight factors were considered, and each one of them represented an eigenvalue for explaining variance through them. In terms of the Kaiser Criterion, in which factors with eigenvalues greater than 1 (Kaiser, 1960) are kept, four factors have been extracted. Together, these factors explain 62.32% of variance in overall variance. The largest variance proportion is explained through Component 1 at 19.18%, and 15.84%, 14.54%, and 12.75%, respectively, through Components 2, 3, and 4, respectively. All the remaining factors, with eigenvalues less than 1, have been eliminated because individually, each one of them explains less than 10% of variance and doesn't pass through the selection criterion.

Table 1

Explained variance and component retention using principal component analysis

Total Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	1.535	19.184	19.184	1.535	19.184	19.184
2	1.268	15.844	35.028	1.268	15.844	35.028
3	1.163	14.543	49.571	1.163	14.543	49.571
4	1.020	12.745	62.317	1.020	12.745	62.317
5	.938	11.724	74.040			
6	.766	9.581	83.621			
7	.755	9.438	93.060			
8	.555	6.940	100.000			

Extraction Method: Principal Component Analysis.

The extracted factors entail a considerable dimensionality reduction with a high proportion of variance in the dataset preserved. Cumulative variance explained in terms of first four factors signifies a high proportion of the variable in its original form, in consonance with best practice in PCA interpretation (Jolliffe & Cadima, 2016). Notably, the declining eigenvalues reflect the diminishing contribution of successive components to explaining variance, as observed in the gap between Component 4 (12.75%) and Component 5 (11.72%). This supports the interpretability and parsimony of the four-component solution. The retained components can now be interpreted based on their factor loadings, offering insights into the latent structure underlying the observed variables.

Discussion

The implications of this study reveal significant information regarding effective constructs of instruction, elicited through observations in a range of classrooms and Principal Component Analysis (PCA). PCA revealed four important components explaining 62.32% variance in the dataset. Retaining these four components, following the Kaiser Criterion (eigenvalues > 1), reflects their salience in explaining effective dimensions of instruction in a range of classrooms. Cumulative variance in excess of 50%, an agreed criterion for reliable interpretations in exploratory analysis (Jolliffe & Cadima, 2016), reflects that these four dimensions represent significant dimensions in effective instruction practice in a range of classrooms. In agreement with theory, these findings validate effective instruction is a multidimensional concept, and a sophisticated analysis of a range of interrelated constructs (Hamre et al., 2012; Gitomer et al., 2014) is therefore merited. The greatest variance (19.18%) explaining Component 1 most likely reflects effective dimensions of instruction and organisation in a classroom, and these constructs have long been regarded in the literature as critical for effective instruction (Danielson, 2011; Hamre et al., 2012). For example, Danielson (2011) regards organisation in a classroom and clarity in learning objectives to be critical in creating an effective environment for instruction, and Hamre et al. (2012) emphasise a role for instruction in clarifying students' motivation and understanding. High explanatory value in Component 1 reflects its salience and its potential for interventions in organisation and instruction in a classroom to have generalised effects in overall instruction quality.

Elements 2 (15.84%), 3 (14.54%), and 4 (12.75%) represent additional important dimensions of instruction, potentially mapping onto student engagement, instruction, and adaptability to variable learner requirements. These constructs resonate with Suyanto and Jihad's (2013) model for pedagogical competency, in that effective instruction requires teachers' capabilities in terms of engaging students, customising instruction for variable requirements, and employing adaptable instruction techniques. For instance, Element 2 could represent techniques for engagement that stimulate active student contribution, an important role for maintaining motivation and improving learner performance. Gitomer et al.'s (2014) work emphasises such a stance, citing student engagement and instruction effectiveness in terms of observation protocols in the classroom. That such four components (combined variance 62.32%) can account for such a high proportion of variance validates PCA's utility in dimensionality reduction for complex datasets with maintenance of salient information. That conclusion emphasises the utility in employing observations in the classroom for instruction evaluation, a stance adopted by McCaffrey et al. (2015). That work demonstrates how powerful

statistical techniques, such as PCA, can tease out constructs and observational information, and therefore yield actionable information about instruction's multi-faceted character. That four out of six components have eigenvalues less than 1 simply reflects the principle of parsimony, in terms of rejecting unimportant constructs for analysis (Kaiser, 1960).

The fact that several components have been identified corresponds with the general work in teaching quality, underlining that effective instruction is not a monolithic entity but a composite of interrelated practice. The conclusion corresponds with the work in the Understanding Teacher Quality (UTQ) study, in that shared and distinct dimensions of instruction have been determined in theoretical frameworks (Gitomer et al., 2014). In specific, dimensions revealed in this work—ranging from classroom management to engagement approaches—correspond with those measured through observation tools in widespread use, such as the CLASS model (Hamre et al., 2012) and Framework for Teaching (Danielson, 2011). In addition, through its conclusion, the work underlines the significant role played by student engagement in terms of a construct supporting instruction effectiveness. That dimension, possibly measured through Component 2, corresponds with work conducted by Sulistiyo and Haswindy (2018), in that these authors underlined a role for collaborative instruction and interactive approaches in supporting engagement. Successful approaches to engagement have a direct bearing in instruction in terms of English as a Foreign Language (EFL), in that holding students' interest and attendance can have a significant impact in terms of instruction achievement (Panev & Barakoska, 2015).

The availability of adaptability as a theoretical construct, represented in Component 4, continues to confirm that effective instruction entails a flexible model in a quest to react to learners' variegated needs. Adaptive instruction, through its practice of altering instruction in relation to students' performance and feedback, tends to promote academic and non-academic performance (Suyanto & Jihad, 2013). This confirms that teacher development programs have a necessity to prioritise adaptability as a key competency, in a position to effectively react to changing classroom settings.

Implications for Teacher Professional Development

The consequences for teacher training, and teacher professional development in general, are significant, and specifically in developing pedagogical expertise. That instruction and classroom management, in terms of Component 1, feature in prominence, and therefore must be retained at the focal point of teacher training, is a reflection of the fact that both contribute towards creating effective environments for learning and form a

basis for a variety of successful approaches to instruction. That is in consonance with Danielson's (2011) model, in terms of prioritising in-depth training in these critical areas.

The creation of engagement and adaptability as new constructs warrants a teacher development model in a whole-person manner. In-service and pre-service training programs must cover training in techniques for engagement, such as participatory instruction and group work, in a quest to stimulate students' participation. Microteaching sessions, in a study conducted by Sumani and Arifin (2017), with a specific consideration for instruction in a classroom environment, effectively enhanced pre-service teachers' competencies in engagement. In a similar manner, lesson studies, according to Sulistiyo and Haswindy (2018), enable teacher collaboration and development in terms of crafting and sharpening techniques for engagement through feedback sessions with fellow teachers. Integration of technology opens a new platform for developing adaptability and engagement. Firman et al. (2019) postulated that EFL teachers using technology tools, such as a projector and web sources, effectively addressed learners with variable requirements and supported participatory settings for instruction. The use of technology in supporting adaptable practice in instruction continues to validate its use in current instruction. Teachers' training in effective integration of technology in instruction can therefore maximise adaptability and engagement effect, according to constructs developed in this study.

The findings also speak to ongoing discussion about teacher evaluation frameworks and whether and under what circumstances they can capture teacher nuance in terms of teacher effectiveness. That single dimensions of constructs in this work have multi-dimensional structures suggests that single measures, such as students' achievement tests, cannot alone suffice for a teacher effectiveness evaluation. Instead, multi-dimensional evaluation frameworks with a variety of dimensions of instruction, such as students' motivation, teacher's clarity, and teacher's adaptability, must be used in order to fairly represent teacher performance. That position is supported in work of the Bill and Melinda Gates Foundation (2013), who espouse multi-dimensional evaluation frameworks. In addition, using PCA to extract latent constructs addresses a variety of weaknesses in conventional teacher evaluation methodologies. By collapsing observational data, PCA introduces a data-intensive mechanism for unearthing inner structures in teacher practice. That analytic tool fortifies evaluation frameworks' validity and dependability, in that it controls for measurement mistakes and identifies structures that cannot necessarily be discerned through single, qualitative observations (McCaffrey et al., 2015).

Limitations and Future Research

The findings have value, but these must be taken in terms of a number of caveats. Observational information brings biases through rater subjectivity, even with high inter-rater agreement in this study. In future studies, these biases could be lessened through triangulation with other sources of information, such as teacher self-evaluated tests, and student feedback. The generalisability of the findings could, in addition, be limited to Saudi Arabian language instruction in general terms. Wider out the study to cover teachers in a range of educational settings and subjects could produce a fuller picture of effective instruction constructs.

A future direction for inquiry involves studying relations between practice and student achievement. Variability in practice in this study, but in future analysis, academic achievement, motivation, and additional factors concerning students and how these practice factors affect them could be studied. That sort of investigation will present a fuller picture of channels through which effective instruction impacts instruction, and will inform interventions to promote educational quality.

Conclusion

The work prioritises discovering and knowing effective instruction constructs through a systemic analysis of observations in the classroom. With Principal Component Analysis (PCA), four principal factors explaining a high variance in practice in instruction were calculated: adaptability, instruction strategies, organisation in the classroom, and dynamics of engagement. Dimensions represent instruction's multi-faceted nature and map closely onto current frameworks for operationalising instruction, such as CLASS (Hamre et al., 2012) and Framework for Teaching (Danielson, 2011). Confirmatory work establishes effective instruction involves a combination of expertise in instruction, classroom management, and a dynamically responsive capacity for students' requirements. In instruction in English as a Foreign Language (EFL), work identifies teacher-specific challenges and a key role for individualised development training. Actionable information for instructors wanting to build instruction and for policymakers developing evaluation frameworks that operationalise instruction's multi-faceted nature is extracted through constructs determined in work. By mapping these constructs onto larger frameworks for teacher competency (Suyanto & Jihad, 2013; Hakim, 2015), work extends current understandings of instruction, individual, and social competencies' integration in creating effective instruction environments.

The application of PCA in this study creates a sound direction for a methodological path for simplifying complex observational information into meaningful constructs. Not only is such a statistical tool a justification for dimensions of teacher quality, but it creates a stage for future studies to investigate its application in a variety of educational settings. In addition, such a study re-affirms value in observation in a

classroom for an analysis of teacher practice, providing a rich picture extending over and above traditional markers of teacher performance. Not with-standing its contribution to its field, such a study is not perfect. That observational information, for all its value, can become tainted with a level of bias, even with consideration for inter-rater reliability, is a weakness considered in such a study. That generalisability of such a study, restricted to one educational environment in Saudi Arabia, will necessitate future studies for a consideration of its generalisability to additional regions and subjects is a consideration for future studies. Longitudinal studies, too, could reveal additional information about development of such constructs over a period and long-term consequences for students.

Acknowledgment

I extend my deepest appreciations to contributing teachers for taking out time and offering useful information. I appreciate most particularly, guidance and feedback of institution reviewers and research team during working in this work.

AI acknowledgment

I acknowledgment the use of language refinement and proof-reading tools via AI, but I assure full responsibility for work and contents and observations with the authors.

Conflict of Interest Statement

The author declares no conflicts of interest regarding the publication of this research.

References

Bill and Melinda Gates Foundation. (2013). *Ensuring fair and reliable measures of effective teaching: Culminating findings from the MET project's three-year study.* Retrieved from http://www.metproject.org

Casabianca, J., Lockwood, J. R., & McCaffrey, D. F. (2015). Trends in classroom observation scores. *Educational and Psychological Measurement, 75*(3), 311–337.

Danielson, C. (2011). *Enhancing professional practice: A framework for teaching.* Alexandria, VA: ASCD.

Firman, F., Tersta, F. W., Riantoni, C., & Sekonda, F. A. (2019). An analysis of English as a foreign language (EFL) teacher's pedagogical competence and readiness in maintaining the implementation of the 2013 curriculum. *Educational Research and Reviews, 14*(13), 474–483. https://doi.org/10.5897/ERR2019.3705

Gitomer, D. H., Bell, C. A., Qi, Y., McCaffrey, D. F., Hamre, B. K., & Pianta, R. C. (2014). The instructional challenge in improving teaching quality: Lessons from a classroom observation protocol. *Teachers College Record, 116*(6), 1–32.

Gordon, R., Kane, T. J., & Staiger, D. O. (2006). Identifying effective teachers using performance on the job. *Discussion Paper 2006-01.* The Brookings Institution, Washington, DC.

Grossman, P., Loeb, S., Cohen, J., Hammerness, K., Wyckoff, J., Boyd, D., & Lankford, H. (2010). Measure for measure: The relationship between measures of instructional practice in middle school English

language arts and teachers' value-added scores. *Working Paper 16015*. National Bureau of Economic Research, Cambridge, MA.

Hakim, A. (2015). Contribution of competence teacher (pedagogical, personality, professional competence, and social) on the performance of learning. *The International Journal of Engineering and Science*, *4*(2), 1–12.

Hamre, B. K., Pianta, R. C., Burchinal, M., Field, S., LoCasale-Crouch, J., Downer, J. T., ... & Scott-Little, C. (2012). A course on effective teacher–child interactions: Effects on teacher beliefs, knowledge, and observed practice. *American Educational Research Journal*, *49*(1), 88–123.

Jolliffe, I. T., & Cadima, J. (2016). Principal component analysis: A review and recent developments. *Philosophical Transactions of the Royal Society A: Mathematical, Physical and Engineering Sciences*, *374*(2065), 20150202. https://doi.org/10.1098/rsta.2015.0202

Kaiser, H. F. (1960). The application of electronic computers to factor analysis. *Educational and Psychological Measurement*, *20*(1), 141–151. https://doi.org/10.1177/001316446002000116

Learning Mathematics for Teaching Project. (2006). *A coding rubric for measuring the mathematics quality of instruction.* Technical Report LMT1.06. University of Michigan, Ann Arbor, MI.

McCaffrey, D. F., Yuan, K., Savitsky, T. D., Lockwood, J. R., & Edelen, M. O. (2015). Uncovering multivariate structure in classroom observations in the presence of rater errors. *Educational Measurement: Issues and Practice*, *34*(1), 34–46.

Panev, V., & Barakoska, A. (2015). The need of strengthening the pedagogical competencies in teaching from the English teachers' perspective. *International Journal of Cognitive Research in Science, Engineering and Education*, *3*(1), 43–50.

Peterson, P. E., Woessmann, L., Hanushek, E. A., & Lastra-Anadón, C. X. (2011). Globally challenged: Are US students ready to compete? *PEPG Report 11-03*. Harvard's Program on Education Policy and Governance & Education Next, Taubman Center for State and Local Government, Harvard Kennedy School, Cambridge, MA.

Sulistiyo, U., & Haswindy, S. (2018). Organising professional and pedagogical training to improve English teachers' skills: A literature review. *Jurnal Pendidikan dan Pengajaran*, *5*(2), 167–174.

Sumani, & Arifin, S. (2017). The EFL pre-service teachers' pedagogical competence based on the instructional approach. *International Conference on English Language Teaching (ICONELT)*, *145*, 204–207.

Suyanto, & Jihad, A. (2013). *Menjadi guru profesional: Strategi meningkatkan kualifikasi dan kualitas guru di era global.* Jakarta: Esensi.

Appendix 1

Observation_ID	Clarity	Engagement	Pacing	Use_of_Technology	Classroom_Management	Student_Interaction	Motivation	Feedback
1	4	4	2	5	3	4	3	3
2	5	1	3	5	5	1	4	3

3	3	4	1	1	1	5	5	2
4	5	2	1	5	5	3	4	4
5	5	1	4	3	4	3	3	1
6	2	5	3	4	5	1	3	4
7	3	3	5	1	1	4	4	5
8	3	4	3	4	4	4	1	3
9	3	3	4	5	5	5	2	1
10	5	3	4	5	4	1	1	1
11	4	1	3	1	2	3	1	5
12	3	3	4	3	2	4	1	5
13	5	5	3	2	5	1	5	2
14	2	3	2	1	4	4	3	3
15	4	1	3	2	1	4	1	3
16	2	5	3	2	5	3	3	4
17	4	2	4	3	2	2	4	2
18	5	3	4	2	2	5	2	2
19	1	1	1	2	5	5	4	2
20	4	2	1	3	4	3	4	2
21	2	2	2	2	2	4	5	3
22	5	4	1	2	4	1	2	3
23	4	5	3	2	2	4	4	2
24	1	3	4	1	2	3	4	4
25	1	1	1	1	3	5	2	1
26	3	4	1	1	2	4	2	1
27	3	5	2	3	1	5	4	4
28	2	4	2	5	5	1	2	2
29	4	5	3	2	5	5	4	3
30	4	5	4	2	4	5	4	1
31	3	3	2	3	2	2	5	5
32	4	5	1	2	1	2	1	5
33	4	4	4	1	4	2	4	4
34	1	5	4	5	3	5	3	2
35	3	3	1	4	4	3	1	1
36	5	3	2	2	4	5	1	2
37	3	4	1	1	2	3	1	1
38	5	2	4	4	3	3	5	4
39	1	2	5	5	4	2	4	4

40	2	5	5	4	1	4	5	5
41	4	1	3	1	1	1	4	2
42	1	5	1	4	5	2	5	5
43	4	4	1	3	3	2	5	2
44	2	4	3	4	3	4	3	5
45	2	4	3	2	5	1	5	3
46	1	4	3	2	4	5	2	3
47	2	4	4	3	3	5	3	3
48	5	3	1	1	1	2	5	3
49	2	2	4	2	1	1	1	1
50	4	4	3	5	2	2	2	3
51	4	1	1	2	3	3	2	4
52	4	1	4	2	4	2	2	4
53	4	1	4	1	5	2	3	1
54	5	1	3	4	5	5	5	3
55	3	3	1	2	4	5	5	3
56	1	1	3	3	2	5	1	3
57	4	4	1	4	5	3	1	5
58	2	5	5	5	3	5	2	2
59	4	1	2	1	2	1	1	5
60	2	3	2	5	3	4	3	2
61	2	3	2	4	1	1	5	3
62	4	1	3	4	2	1	2	3
63	5	5	5	4	5	5	1	5
64	2	1	1	5	2	4	3	5
65	2	3	4	4	2	4	3	2
66	4	2	1	5	2	4	1	4
67	2	4	4	4	2	3	5	2
68	2	3	1	3	3	5	1	5
69	4	1	5	4	1	4	2	5
70	4	4	4	5	4	3	1	1
71	1	1	3	2	2	2	3	5
72	5	1	1	4	5	2	1	1
73	5	2	1	2	2	3	5	4
74	2	4	4	3	5	3	4	2
75	5	4	3	1	3	5	1	2
76	2	2	3	3	5	5	5	1

77	1	3	5	4	4	2	5	2
78	4	1	3	2	1	4	3	5
79	4	5	3	2	5	2	5	3
80	4	1	3	5	5	4	5	1
81	5	1	2	2	1	4	5	2
82	1	3	5	5	4	5	5	1
83	5	1	1	1	2	1	2	1
84	5	2	4	4	5	1	2	3
85	1	2	1	5	1	3	3	5
86	1	4	5	1	3	5	1	1
87	1	5	4	2	1	4	5	2
88	1	1	5	2	3	1	1	4
89	4	1	3	1	4	4	1	1
90	3	3	4	2	2	1	3	1
91	3	2	3	1	1	1	5	3
92	1	5	1	5	5	1	5	5
93	3	4	1	5	4	5	4	4
94	3	2	4	1	1	2	1	2
95	1	4	4	5	5	4	1	4
96	3	3	5	5	1	5	2	2
97	5	3	5	5	3	5	4	5
98	2	1	3	3	1	5	2	2
99	2	5	4	4	1	5	2	3
100	1	4	1	2	1	5	2	3