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RESEARCHARTICLE



Effect of Teacher Training and Anxiety on Student Achievements: An Analysis of Web-Based Remote Learning in English Education

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Abstract

The study aims to investigate the performance of English teachers in web-based remote learning programs in Pakistan, Bangladesh, China, and India, focusing on the influence of their training levels and English teaching anxiety on students' achievement. Academic educators have identified several challenges English teachers face in online courses, including technological unfamiliarity, difficulty in student assessment, workload, language instruction limitations, and lack of internet access. The research gathered quantitative data from 1770 English teachers engaged in distance learning programs through social media platforms (e.g., Facebook, Instagram, WhatsApp, LinkedIn, and Google Scholar) using questionnaires, online interviews, and face-to-face interactions. The research methodology employed the Partial Least Squares Structural Equation Modeling (PLS-SEM) approach to analyze the quantitative data. The results reveal a strong correlation between English teachers' educational background, teaching strategies in distance learning, and their performance. Additionally, the findings indicate a significant decrease in teaching anxiety levels among English teachers during online sessions and improved self-confidence when instructing students in distance learning programs. These findings contribute to understanding the relationship between teacher training, teaching anxiety, and student achievement in web-based remote learning contexts.

KEYWORDS

English teachers' education level; Teaching anxiety level; English teachers' performance; PLS-SEM analysis; Underdeveloped countries

1 | INTRODUCTION

Educational technology has expanded learning options for students. Online classes, applications, and virtual resources are examples. English teachers were most concerned about motivating virtual students during the pandemic. Particularly in English instruction, the efficient application of digital technology in distant learning has become an essential component of contemporary schooling (Dziuban et al., 2018). To provide their students with the best possible virtual learning environment, many teachers are incorporating various digital technologies into their remote English teaching programs. Computing devices, online databases, websites, and programs fall under "digital technology." English teachers use these resources to modernize their classes and introduce students to engaging forms of instruction. Thanks to digital technology, English educators now have exciting new

tools to use in the classroom (Boss & Krauss, 2022). Videos, animations, and guizzes are interactive multimedia components that make learning more engaging and exciting. Virtual simulations are also used in the English classroom to allow pupils to investigate linguistic ideas in a safe and secure online setting. The internet has a wealth of resources for education and research. English teachers must integrate resources like computers, online platforms, and internet resources to effectively employ digital technology in distance (Aljawarneh, 2020). Diverse teaching strategies, interactive aspects that increase student involvement, access to a wealth of online resources, individualized learning opportunities, and flexible scheduling are all benefits. To match digital technologies with teaching objectives and curriculum, pedagogical support is essential. It is crucial to balance

teaching and technology while examining educational outcomes [2]. To close the digital competence gap and guarantee that technology improves the learning process and professional development (König et al., 2020). The objective of the study is to assess three significant factors that play a vital role in Web-based online English teaching: (1) a teacher's education level, (2) students' concern about teaching a new language, and (3) teachers' performance while teaching English to pupils with varying linguistic ability. The study has applied questionnaire-based data collected via face-toface interviews and online interactions with Pakistani, Indian, Chinese, and Bangladeshi students. The study indicated no substantial difference in performance between novice and expert language teachers. The study has applied the PLS-SEM model to analyze the data. The results demonstrate disparities in teaching strategy frequency and proficiency category ranking.

The research suggests that while education level and anxiety may influence teaching performance, other factors also impact how teachers teach and students learn. The study found that worried teachers used traditional teaching approaches more frequently and effectively taught English to students with varying language abilities; therefore, big data analytics are critical. The results indicate no substantial variation in instructor skills between beginner and experienced language learners. There are disparities in teaching strategy frequency and proficiency category ranking, suggesting that personality, teaching style, and students' learning preferences also affect teaching performance. The study reveals that education, anxiety, and other variables affect teaching ability, and the teaching performance of L2 teachers with bachelor's and master's degrees is similar. However, anxiety measurements are not substantially linked with students' language exam performance (Pérez Castillejo, 2019).

Teachers have formal training, and students speak English. The students in the study are not novices and have some English teaching experience. The anxiety indicators do not substantially correspond with students' language exam performance or the evaluation of English professors. Four components make up the remaining portion of the research. A succinct summary of the writing survey is then employed in Part 2 to demonstrate the review's legitimacy and relevance. Section 4 explains the investigation's results and ramifications, while Part 3 clarifies the exploration approach. The findings and suggested next steps are discussed in Section 5 at the end.

2. Literature Review

The study indicated that high-assurance instructors needed less digital competence aid following the training. The training is more successful for teachers with strong digital abilities, and the online

learning platform and instructional design pleased pupils (Xie & Rice, 2021). More engaging video content, challenging learning tasks, and additional student support are needed. Lack of instructor interaction is the main barrier to distance learning English, and students consider distance learning harder than regular learning (Nambiar, 2020). English teachers must create dynamic learning environments, internet platforms, and mobile apps for remote learning because these methods make distance learning more successful in teaching English (Hazaymeh, 2021). Teachers with less digital confidence have found that the training could be more beneficial. Students liked the online learning platform and instructional design because they learned well online. Improved sections included appealing video content, and this critique is accurate since compelling video material motivates and engages pupils (Barkley & Major, 2020). The largest problem in distance learning English is the need for instructor contact. Students need to communicate with their professors for guidance and feedback. Distance learning requires students to be more motivated and self-directed, which is another big issue (Loeng, 2020). Visualization and interactive technology greatly impact students' motivation to learn English; their academic achievement and perception of distance learning will improve daily (Ibáñez et al., 2020). The requirements of rural teacher education for English-language learners are defined in terms of their local settings in this article, which questions metrocentric norms in teacher education (Hansen-Thomas et al., 2014). However, in the past, urban-centric norms have dominated teacher training via professional development and education, dictating what educators must know and do for their EL students. Poor ratings are given to the language-related factors, especially those that deal with phonology and spelling. Vocabulary-related activities took up most of class time in EFL classrooms, but training in phonemic awareness and word reading took up the least (Vaisman & Kahn-Horwitz, 2020). Multilevel linear modelling and analysis of covariance analyses for 42 special education teachers working with third, fourth, and fifth graders with SLD in intensive reading groups showed that teachers' knowledge of teaching reading fluency predicted student gains on ORF measures (Park et al., 2019). The P-SELL intervention enhances all four indicators of instructional practices, teaching for understanding. inquiry, language development strategies and home language use and teachers' scientific knowledge (Lee et al., 2016). These guises reduce professional agency, forcing pre-service and teaching instructors to adopt racial and linguistic ideologies and blame low-income and radicalized populations for modifying their language to match idealized whiteness. The education and training system aims to improve, produce, and develop personnel. A

teacher's educational background in Pakistan includes academic competency, pedagogical understanding, topic knowledge, and curricular training (Kulshrestha & Pandey, 2013). The rapidly growing number of bachelor's degree holders in the teaching profession makes a bachelor's degree essential for earning an English teaching license and finding a job in the Chinese teacher labor market (Wang et al., 2013). The research adds to a growing corpus of research on teacher education and how higher education makes people more capable of fulfilling various educational requirements (Johnson et al., 2016). Teachers are worried about teaching secondary languages in developing countries like Pakistan, India Bangladesh (Rahman et al., 2019). Speech anxiety makes communication difficult, leading to language anxiety and nervousness. Teachers may need better directions that affect students' learning (Aziz & Kashinathan, 2021). Language anxiety is reluctance or nervousness when speaking a language, and the teachers' linguistic concern affects their performance. Five influences are genetics, personal history, acquired helplessness, early communication skill adaptation, and communication models (Aldarasi, 2020). Language tension, correspondence anxiety, test anxiety, and fear before unfavorable evaluation are execution nerves (Tsiriotakis et al., 2017).

3 MATERIALS AND METHODS 3.1. Research Framework

The study's design determines how research topics and methods are approached, and a cross-sectional survey approach is employed to analyze trends over time. The study aims to determine whether quantitative methods and a questionnaire survey are suitable for quantitative research. As a result, the study's framework, including its hypotheses, variables, samples, and analysis methods, is developed.

3.2. Data Collection

Quantitative data for the study are gathered using questionnaires and in-person interviews. Questionnaires provide standardized participant information, while in-person interviews offer deeper insights and context. This combined approach enables a comprehensive and statistically analyzable dataset.

3.2.1. Questionnaire

This study uses a Likert scale questionnaire, with response options ranging from 1 to 7. The dissemination of the electronic survey is done through various internet channels. Table 1 determines the results related to Cronbach's Alpha. These numbers are used to evaluate the dependability of the overall data and the consistency of the replies to the questionnaire.

The professional carries out a preliminary investigation, and the survey questions are designed to validate the data's reliability. The primary objective of the initial study is to ascertain whether the survey inquiries are comprehensible enough to elicit replies that can be analyzed.

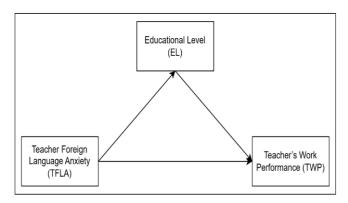


Fig. 1: Research Framework.

3.2.2. Interview

The research has used online and in-person meetings, written and directed in Urdu, English, Hindi, and Chinese, to alleviate English instructors' stress and teaching anxiety during English teaching. Members get research questions via WhatsApp, Facebook, Instagram, LinkedIn, and Google Researcher forms a few hours before the meetings. It helps the researchers to prepare responses, and participants have a one-on-one Zoom session with an English teacher to attend the meeting.

3.2.3. Educational Level

Table 2 displays the level of expertise that English teachers who instruct students in online English language distance learning programs possess. It is possible for English teachers who work with online learning programs

Table 1: Cronbach's Alpha test findings for each subscale and overall questionnaire

No.	Section	Cronbach's Alpha
1	Success rates of online English courses and the training level of teachers	0.789
2	The effectiveness of English is affected by their educational background	0.699
3	The degree of worry experienced by English instructors influences their work	0.703
4	Anxiety among English instructors affects student performance	0.901
5	The educational background of English instructors affects their pupils' progress in the language	0.789

to have a wide variety of educational backgrounds, ranging from certificates at the entry level to degrees at the postgraduate level.

Table 2: The education level frequency distribution of English teachers' level

Educational level	Frequency	Percentage
Undergraduate (20 Years)	850	48.02
Master's (24 years)	785	44.35
PhD	135	7.63
Total	1770	100

According to the numbers, the percentage of people with a bachelor's degree (20 years) is 48.02%; those with a master's degree (24 years) are 44.35%; and those with a doctorate are 7.63%. Teachers' education level affects their topic knowledge, instructional abilities, and general competence. Teachers of English with greater education tend to have a deeper awareness of the best practices, pedagogical frameworks, and theoretical foundations for instructing students remotely through the web (Azano, 2011). Thanks to their bachelor's degrees in English linguistics, they have a background in English language learning, curriculum development, and teaching methodologies. Teachers with these degrees are better prepared to apply relevant ideas and best practices in online classrooms through critical analysis and research.

3.2.4. Teaching Experience in Years

Table 3 shows the years of experience and the number of times the English instructor has taught. It is essential to consider English teachers' level of teaching competence before judging the effectiveness of webbased remote learning programs.

Table 3: The experience of English teachers' teaching experience level.

Years of experience	Frequency	Percentage
0–2 years	360	20.34
3–5 years	740	41.81
6-10 years	430	24.29
More than 10 years	240	13.56
Total	1770	100

English instructors with less than two years of experience are 20.34%, those with three to five years are 41.81%, those with six to ten years are 24.29%, and those with more than ten years are 13.56%. Here is the percentage of English teachers with different classroom experiences. The highest rate of English instructors with 6–10 years of experience is 24.29%, followed by 41.81% with 3-5 years. 13.56% of English teachers have less than 10 years of experience. Finally, 23.4% of ESL teachers have "no teaching experience". A teacher's time instructing English is what is meant when speaking about that individual's experience as a teacher

(Goldenberg, 2008). The factor has a significant bearing on the pedagogical understanding, instructional tactics, and classroom management abilities of a teacher.

3.3. Research Design

The study used the Smart PLS-SEM method to analyze the data about the three factors. The PLS-SEM model is great for testing hypotheses and prediction-based models and establishing beliefs (Petter & Hadavi, 2021). SEM-PLS is another benefit for models with one or two components: route analysis, measurement, and structural models. Before PLS-SEM analysis, outliers and missing values are examined to get the best model. The methodology has two steps. In the first step, Smart PLS 4 analyzes and discusses the model's validity and dependability to establish its reliability. The second step of the research project, which tested hypotheses, comprised calculating R², F², and Q². A mediation analysis is also performed to assess the latent components' impact on the outcomes.

4 | RESULTS 4.1. Multivariate Skewness and Kurtosis

The study followed the work to stress using an online tool for assessing kurtosis and skewness in multivariate data (Robinson et al., 2019). The survey data underwent Partial Least Squares Structural Equation Modeling (PLS-SEM) analysis to evaluate multivariate normality. Table 4 indicates a lack of multivariate normality, with Mardia's multivariate skewness at 3.3 (p < 0.01) and Mardia's multivariate kurtosis at 22.5 (p < 0.01). These values signify significant deviations from normal skewness and kurtosis assumptions, highlighting the need to consider alternative methods for analysis non-normally distributed data.

4.2. Assessment of Measurement Model

The study referenced the works of Mohajan (2017) to evaluate the validity and reliability of the measurement model using partial least squares structural equation modelling (PLS-SEM) analysis. Validity assesses the accurate measurement of concepts, while reliability focuses on measurement consistency. The measurement model involves the instruments used to gauge variables. This evaluation of validity and reliability helps establish the accuracy and consistency of data, influencing the analysis of relationships between variables (internal model). Fig 2 displays the measuring strategy used for the investigation.

Average variance extracted (AVE) evaluates how effectively the instrument measures individual variables and the underlying concept. The Fornell and Larcker

Table 4: shows the output of the Skewness and Kurtosis calcula

Sample size:	1768					
Several variables:	3					
Univariate skewness and kurtosis						
	Skewness	SE_skew	Z_skew	Kurtosis	SE_kurt	Z_kurt
Educational Level	-0.990	0.058	-17.012	0.300	0.116	2.577
Teacher. Foreign Language. Anxiety	-0.944	0.058	-16.216	0.308	0.116	2.648
Teachers' Work Performance	-1.544	0.058	-26.525	1.832	0.116	15.749
Mardia's multivariate skewness and kurtos	sis					
	b	Z	p-value			
Skewness	3.331956	981.81647	0			
Kurtosis	22.476329	28.69716	0			

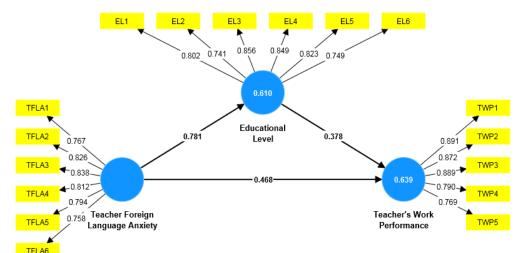


Fig. 2: Shows the Measurement Model results

criteria compare the square root of AVE with interconstruct correlations to determine variable uniqueness (Sahoo, 2019). Composite reliability evaluates measurement consistency and stability utilizing indication loadings and measurement errors. These methods verify the measuring instrument's accuracy, variable uniqueness, and dependability, bolstering the study's conclusions.

4.3. Interior Coherence, Convergent Validity, and Reliability

According to Hair et al. (2019), internal consistency (CR) scores equal to or higher than 0.60 are regarded as satisfactory, and average variance extracted (AVE) values greater than 0.50 are desired for convergent validity. Table 5 demonstrates that the AVE values for each variable range from 0.640% to 0.712%. These standards guarantee the model's dependability and the accuracy of its measurements, boosting the validity of the study's findings.

The AVE (Average Variance Extracted) values for each variable in a review and their associated reaches raise the estimated accuracy and reliability of the model. The AVE is a factual metric widely used about main condition exhibiting (SEM) to evaluate constructions' consistency and collective validity. The normal range for AVE values is between 0 and 1. Higher AVE values

indicate that the core construct they are designed to measure is making sense of a greater portion of the change in the observed components. Given that the criteria are more closely related to the issue they should solve, the evaluation suggests a higher degree of integrated validity. The values of the relevant AVE range from 0.640% to 0.712%. It is crucial to specify whether these characteristics are meant to be expressed as rates (0.640% to 0.712%) or in decimal form (0.00640 to 0.00712). Given that transmitting AVE values using decimal structures is customary, you suggested 0.00640 to 0.00712.

4.4. Discrimination Validity

Discriminant validity demonstrates how each study component has its own identity and is not too connected to other components. According to Fornell and Larcker (1981), a concept has discriminant validity if its square root of the AVE is considerably more significant than its correlations with the other constructs in the model. Table 6 shows that discriminant validity is confirmed.

The outcome outlines a method for assessing research models that span several related and unrelated disciplines. The HTMT ratio is a metric to determine if several constructions are distinct (Franke & Sarstedt, 2019). The authors recommend employing a threshold of 0.85 for conceptually similar domains and

Table 5: displays the results of each variable's reliability and validity
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Construct	Items	Loadings	Cronbach's alpha	Composite Reliability (rho_a)	Composite Reliability (rho_c)	Average Variance Extracted (AVE)
	EL1	0.789	0.89	0.895	0.917	0.648
	EL2	0.741				
Educational	EL3	0.856				
Level	EL4	0.849				
	EL5	0.823				
	EL6	0.749				
	TFLA1	0.767	0.887	0.892	0.914	0.640
Teacher	TFLA2	0.826				
Foreign	TFLA3	0.838				
Language	TFLA4	0.812				
Anxiety	TFLA5	0.794				
·	TFLA6	0.758				
	TWP1	0.891	0.898	0.898	0.925	0.712
Teacher's	TWP2	0.872				
Work	TWP3	0.889				
Performance	TWP4	0.79				
	TWP5	0.769				

Table 6: Discrimination Validity Matrix (Fornell-Larcker criterion)

	Educational Level	Teacher Foreign Language Anxiety	Teacher's Work Performance
Educational Level	0.805		
Teacher Foreign Language Anxiety	0.699	0.8	
Teacher's Work Performance	0.744	0.764	0.844

0.90 for closely related domains. If the HTMT ratio exceeds these limits, questions arise regarding discriminant validity due to overlap between the measured constructs. Table 7 demonstrates that the constructs under research are sufficiently diverse; the discussion compares HTMT values to these suggested criteria.

4.5 Assessment of Structural Model

The study discusses a research approach where the relationships between different variables are explored using a structural model. A bootstrapping technique involving 5,000 subsamples is employed to investigate connections among these variables. Fig 3 depicts a strong relationship between foreign language anxiety among teachers, their educational level, and their work performance.

4.6 Predictive Relevance and Coefficient of Determination

Table 8 reveals connections among three factors. It explains the impact of an external variable on the regression coefficient (R²), which measures how much the independent variables explain the dependent variable's variance. The coefficient of determination (R²) is presented with suitable values for weak, moderate, and strong results. Predictive relevance (Q2) is introduced, where external factors are considered predictive when Q² reaches zero (Sohaib et al., 2019).

The passage concludes that the new research model's Q² results of 0.609 and 0.582 indicate a generally favorable predictive capability.

The educational level significantly influences a teacher's ability to do their job (β value = 0.378; T = 11.41; p < 0.05). A strong positive connection exists between teacher foreign language anxiety and educational level (β = 0.699; T = 62.36; p < 0.05). Moreover, a significant positive connection exists between instructor foreign language anxiety and performance (β = 0.468; T = 14.748; p < 0.05). According to the findings, there is a noticeable and statistically significant positive correlation between an instructor's proficiency in a foreign language and their teaching effectiveness. When teachers' anxiety levels rise when using a foreign language, their English teaching efficacy improves (Muijs et al., 2014).

4.7 Mediation Analysis

The researchers investigated how various factors, including educational level, indirectly influence a dependent variable through mediators. They used a statistical technique called bootstrapping to analyze these indirect effects, aiming to understand their consistency and reliability. Table 9 sheds light on the complex relationships between the variables under investigation.

According to the study, with a β value of 0.296 (t = 11.387; p < 0.05), researchers are looking at how factors including education level and teacher foreign language

Table 7: Discriminant validity and hetero-trait-monotrait correlations (HTMT)

	Educational Level	Teacher Foreign Language Anxiety
Teacher Foreign Language Anxiety	0.876	
Teacher's Work Performance	0.825	0.84

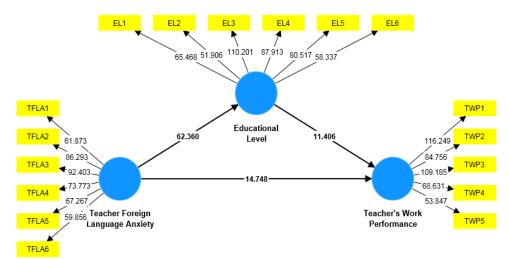


Fig. 3: shows the structural model of all the variables.

Table 8: Results of hypotheses testing (Direct effects)

No	Hypothesized Path	Path Coefficient	Standard (STERR)	Error	t-value	p- value	Decision	Effect (f^2)	Size	R ² Val	ue	Q^2
H ₀₁	EL → TWP	0.378	0.033		11.406	0	Supported	0.155		EL	0.610	0.609
H_{02}	TFLA →EL	0.699	0.013		62.36	0	Supported	1.564		TWP	0.639	0.582
H_{03}	TFLA →TWP	0.468	0.032		14.748	0	Supported	0.237				

Table 9: Indirect Effect (Mediation testing)

No	Relationship	Std. Beta	Std. error	t-value	p-value	2.50%	97.50%	Decision
H4	TFLA → FL → TWP	0.296	0.026	11 387	0	0.246	0.347	Supported

fear affects productivity in the workplace, according to the release. However, the teachers are also investigating the function of a mediating factor in explaining the indirect effect of these two factors on productivity in the workplace (Delbari et al., 2021). In other words, they want to know if there is a connecting factor between schooling, fear of foreign languages, and productivity at work.

5 | DISCUSSION

The text highlights the need for educators, particularly in English language teaching, to become more familiar with advanced technology tools for online education. However, the deficit impairs the potential benefits of these tools in enhancing English language learning. The discussion underscores the need for educators to receive proper training and resources to effectively integrate these technologies into their online teaching methods (Caena & Redecker, 2019). The notion of "digital competence" is introduced in the book as a necessary ability for instructors to use technology in their instructional practices effectively. The skill includes the capacity to utilize and comfortably navigate digital tools and resources to improve teaching strategies and

effectively engage students in online learning activities (Wong et al., 2012). The instructors' educational backgrounds impact distant learning performance, possibly resulting in superior outcomes from their more profound topic knowledge, efficient teaching strategies, and technical competence. However, other elements, such as pedagogical expertise, flexibility, and building a friendly online community, also play significant roles in effective remote teaching. A collaborative effort encompassing teachers, students, course design, technology, and support services is required for remote learning effectiveness (Rasheed, 2007). Instructors' anxiety negatively impacts their online teaching effectiveness and student conduct. A lack of English competence and self-confidence frequently contributes to this worry (Huang, 2012). These causes of worry stymie open lines of communication and impede instruction flow in a virtual classroom, resulting in suboptimal learning outcomes and potentially disruptive student behavior. The findings explain the factors contributing to classroom anxiety, such as overburdening assignments and language barriers. It highlights the necessity of teacher wellbeing in establishing a happy learning environment and the impact of technology use, which both enhances learning and contributes to digital stress (Alam, 2022).

6. Conclusions and Recommendations

The study stated above intended to investigate the opinions of English instructors on online courses that used up-to-date technological and bibliographical resources. There are two primary areas of investigation into the efficacy of online education. The study's first objective is to examine how English instructors' academic credentials affect their effectiveness as online educators. Second, the study examined how English instructors' anxiety levels affected their effectiveness in online teaching. The study gathered information from English instructors via surveys and interviews. The study's findings provided a rich and nuanced understanding of educators' perspectives on online learning. Students are more motivated participating in a distance learning course. Teachers with an optimistic view of student participation in online classrooms cited things including ready access to digital resources, regular class attendance, opportunities for students to work together on tasks, and the convenience of scheduling lessons at convenient times and locations.

Contrary to popular belief, introverted students are shown to be more engaged in online classrooms than in face-to-face ones. Student participation increased, and feelings of humiliation decreased, possibly because of the virtual environment's compelling features. However, the research also revealed difficulties instructors confront while delivering distant learning. This category of obstacles includes unreliable internet connections, concerns, higher technological workloads, problems with assessment reliability. The study also stressed the value of in-depth training programs for educators to continue their education and improve their skills in the context of online instruction. The results indicate that teachers need proper preparation to adapt their pedagogy to digital media successfully. It highlights the importance of overcoming problems and providing educators with sufficient training to successfully deploy remote learning programs, as well as the potential benefits of greater student enthusiasm and participation in online classrooms.

6.1. Limitations

Even though the current review produced many significant findings, it had certain restrictions. The largest restriction is that most members are female FL teachers. The results would have been more broadly applicable if educators from various subject areas and with different levels of orientation had been included, which will be the topic of further study.

6.2. Future Suggestions

Internet-based learning should emphasize relationships and encourage students to participate in

online discussions. Future studies may focus on implementing a web-based progressive platform and increasing its quality and dynamic content. Framework learning promotes self-directed online education, which may diminish online educator support. Quality and components had a greater impact on learning than web-based discourse.

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