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Review

Examining Neuro-Linguistic Programming Practice in English Language Teaching: A Systematic Review and Qualitative Meta-Synthesis

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Received: 12 December 2025; **Revised:** 26 January 2026; **Accepted:** 6 February 2026; **Published:** 28 February 2026

Abstract: Neuro-Linguistic Programming (NLP) is an instructive approach that enhances teacher effectiveness, learner-centric environments, and language skills. Despite its widespread use in English Language Teaching (ELT), no thorough, systematic review and meta-synthesis evaluating its effectiveness has been conducted to date. The present research adhered to the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) guidelines and conducted a systematic review and qualitative meta-synthesis to evaluate the application of NLP in ELT. Research articles for the present review were obtained from academic research databases, including Scopus, Web of Science, Science Direct, Cochrane Library, PubMed, Psyndex, and ERIC. A total of 3470 articles were identified across the five electronic databases listed above; of these, 20 pertained to NLP in ELT. This research also shows that the use of NLP has a significant effect on improving students' emotional intelligence and cognitive development. Evidence also indicates that NLP interventions have reduced learning anxiety, improved classroom communication, and enhanced language-learning outcomes among language learners. In addition, NLP (i) enforces pedagogical methods and (ii) learner-centered educational milieu, and professional identity. The results underscore the transformative potential of NLP in contemporary teaching and learning and recommend its systematic implementation in ELT through changes in teaching methodology and learner competence.

Keywords: Neuro-Linguistic Programming; PRISMA; Pedagogical Strategies; Learning Anxiety; Cognitive Development; Meta-Synthesis

1. Introduction

Neuro-Linguistic Programming (NLP) has proven effective in business communication, health care and medicine, education, second-language learning, and behavioral change. It comprises a set of tools and activities designed to promote efficient communication, self-discovery, and metacognitive understanding. It seeks to improve the quality of people's lives by introducing them to new and empowering perspectives on their ambitions and goals, as well as on how to express themselves more effectively among others [1]. Knight defined NLP as "an approach to communication, personal development, and psychotherapy. It is based on the relationship among neurological processes (neuro), linguistic processes (linguistic), and learned behavioral patterns (programming) [2].

It was initially introduced in psychotherapy in the 1970s and has since then been used in various fields, including education. It includes various techniques and devices to enhance communication, regulate emotions, stimulate creativity, and facilitate learning [3]. These methods generally employ sensory-based language patterns, rapport-building techniques, and the identification and application of learning styles. NLP-based techniques have increas-

ingly found their way into popular classroom teaching methods and alternative education programs, offering teachers new methods to motivate learners.

In English Language Teaching (ELT), NLP has been employed in various ways. Educators, for instance, employ anchoring strategies to help apprehensive learners associate a calm emotional state with language performance activities such as oral presentations. The technique of reframing enables learners to perceive errors as a stepping stone rather than as failure. Similarly, imitating effective communicators while modeling allows participants to repeat sentences with fluency, proper pronunciation, and confident body language. NLP has also been applied to vocabulary and grammar instruction by using sensory language (seeing or feeling words or actions, listening to sounds, moving while learning verbs), thereby purposefully utilizing different learning modalities. These classroom activities illustrate how NLP can enhance the linguistic and affective dimensions of language learning [4–7].

NLP has been growing in popularity, despite criticism and a lack of evidence of its effectiveness from the scientific community. Some psychologists view it as pseudoscientific or claim that its effects are merely superficial and temporary [8]. This discrepancy between frequent use and scholarly skepticism underscores the need for further investigation and consideration by NLP practitioners and researchers [9]. The growth of NLP in education has led to the development of numerous methods to enhance classroom instruction and student engagement. These methods seek to improve the teacher-student relationship, promote positivity in the classroom, and provide support for learners to navigate through cognitive barriers to learning. However, the lack of robust data supporting the use of NLP as an effective strategy in education remains a significant obstacle for researchers and practitioners.

The current study is crucial, as it underscores the growing importance of NLP in ELT by synthesising qualitative findings from existing studies. It seeks to bring coherence to the concept of NLP in relation to English language teaching. Despite using different pedagogies in English Language Teaching (ELT), some psychological factors still exist among learners, including language anxiety, low self-esteem, and lack of motivation. These psychological factors are barriers to successful language learning and class participation, and NLP techniques can address them.

Indeed, NLP techniques have been shown to increase learners' self-efficacy, empathy, and motivation, thereby improving language performance [10]. NLP has been recognized as a useful tool for facilitating learners' fluency and accuracy in the target language by helping them overcome psychological barriers associated with self-correction, feedback, or positive reinforcement [11, 12]. Furthermore, NLP strategies such as anchoring and modelling contribute to learner-centered settings and enhance productive and receptive language abilities [13, 14].

Recent research emphasizes the increasing importance of language-based models in various fields. Research into large language models (LLMs) finds them effective in demonstrating personalized decision-making facilitated by advanced linguistic and cognitive processing [15], which aligns with NLP-oriented approaches to ELT that prioritize individualized instruction and learner-centred speaking skill development. For instance, randomized control trial findings empirically demonstrate that NLP has a significant effect on emotional and cognitive well-being (e.g., affective regulation, comfort) [16], outcomes which are directly associated with reduced speaking anxiety and improved oral proficiency within the context of ELT. Furthermore, explainable artificial intelligence (XAI) studies highlight the importance of transparency, interpretability, and ethical responsibility in language-driven systems [17], underscoring the need for ethically motivated, context-sensitive NLP-based pedagogy to enhance learners' cognitive engagement and speaking performance.

Objective and Research Questions

The present study aims to review and synthesise research on the application of NLP in ELT. It discusses the potential of NLP methods for student motivation, cognitive development in learning, emotional intelligence, and teacher effectiveness. It will seek to identify barriers encountered when adopting NLP in ELT and to present possible implications for further research and pedagogy. The specific objectives of this study are as follows:

- To analyse the impact of NLP techniques on teaching effectiveness and learner engagement in ELT classrooms.
- To investigate the influence of NLP strategies on students' motivation, emotional intelligence, and language learning outcomes.
- To identify challenges and limitations associated with implementing NLP in ELT settings.
- To recommend future research directions and pedagogical implications for integrating NLP in English language teaching.

Accordingly, the study is guided by the following research question:

RQ1: How do NLP techniques influence teaching effectiveness, learner engagement, motivation, emotional intelligence, and language learning outcomes in ELT classrooms?

The remaining section is organized as follows. Section 2 critically reviews the relevant literature on NLP in ELT, discussing its affective, cognitive, pedagogical, and linguistic benefits, as well as research issues. Methods Section 3 describes the methodological approach in the context of systematic review design, PRISMA-informed search strategy, inclusion criteria, quality assessment, and qualitative meta-synthesis. The thematic synthesis results are presented in Section 4, along with the descriptive and analytical themes identified across the reviewed studies. It then, in Section 5, discusses the results in relation to relevant theories of ELT and educational psychology, considers methodological shortcomings, and draws pedagogically relevant conclusions. Section 6 concludes the paper by outlining the main contributions and future work.

2. Literature Review

2.1. Motivational and Psychological Impact of NLP

The applications of NLP are evident across domains such as sports, medicine, psychology, education, business, and personal development. Research has shown that NLP is a multifaceted tool that can improve performance, communication, motivation, and emotional well-being. NLP provides tools to influence cognitive processes, emotions, and behaviours positively. This also induces motivation and decreases anxiety in learners [18]. Learners become more motivated when using NLP techniques such as music mnemonics, dictation, and film-based instruction. It also improves students' communication skills, personal development, and performance [11].

Research in NLP indicates strong potential to reduce classroom anxiety, foster self-efficacy, and enhance learners' emotional intelligence [6,7]. For instance, anchoring and reframing techniques have been shown to transform negative emotions into positive learning experiences, with beneficial effects on learner confidence and classroom participation [1,5]. As reported, teachers who use NLP techniques establish a more positive and emotionally supportive classroom, thereby enhancing students' motivation and resilience [12]. NLP has been recognized as a pivotal pedagogical resource in ELT for improving students' motivation, communication, and emotional engagement. NLP instruction enables teachers to gain insight into their learners' cognitive and emotional needs through techniques such as anchoring, reframing, and modeling successful language behaviors [19,20]. NLP-trained teachers reported that their classroom rapport had improved, and this flexibility helped accommodate diverse learning styles by reducing student anxiety [21,22]. Studies have shown that the use of NLP techniques, namely mirroring and pacing, enhances trainees' self-esteem and involvement in classroom activities, particularly speaking activities [23,24].

In addition, NLP provides a learner-friendly environment in which emotional intelligence and motivation contribute significantly to the development of language [12]. NLP's linguistic basis was also evident in a recent study that associates NLP with improved understanding and retention of English forms [25]. The revalidation of an NLP scale for teachers indicates that NLP skills are associated with empathy, adaptability, and effective communication, which are necessary for language teaching [26]. Collectively, these studies affirm that NLP serves as both an instructional framework and a psychological approach, empowering teachers and learners alike to improve performance and emotional well-being within the EFL classroom.

2.2. NLP for Language Skill Development

NLP techniques are used to improve skills in grammar, reading, listening, and comprehension. An increase in self-confidence, motivation, and positive attitudes among language learners is one of their advantages [19]. For instance, when learners understand how the brain's sensory systems operate or why language is processed across the visual, auditory, and kinesthetic modalities, they enhance their reading and listening comprehension [10]. NLP interventions are used in English language classrooms at Basara University of Iraq, with significantly improved outcomes, including increased reading comprehension levels and student engagement [14]. NLP techniques such as goal setting, sensory language, metaphor, emotion and belief, and feedback can be combined to enhance reading tasks and comprehension. Such sensory approaches help promote deeper encoding of new language structures, thereby stimulating multiple cognitive pathways [13,14].

NLP techniques such as "modeling successful communicators" help learners overcome pronunciation, fluency,

and nonverbal communication problems [5]. They enable students to enhance their metacognition of successful communication strategies by watching and imitating [27,28]. Thus, comprehensively, NLP develops language skills on the one hand and, on the other, integrates cognitive, affective, and behavioral processes of learning to bring about whole language competence.

2.3. Teacher Perspectives and Classroom Applications

Teachers are key to adapting NLP for educational settings. NLP assists teachers in relating to students, managing classroom emotions, and increasing communication clarity, thereby enhancing teaching effectiveness [12]. When teachers integrate NLP skills into their classrooms, it can provide both teachers and learners with a dynamic, responsive environment that accommodates multiple learning styles. NLP applications such as future pacing, swish, anchoring, visual-kinesthetic dissociation, and reframing allow the teacher as well as the student to change behaviour in a manner that is more helpful and effective, thereby generating a positive learning environment [29]. These techniques are not only motivational but also support the development of empathy and emotional understanding between teachers and learners, which are essential to promoting retention [30].

Disney's NLP-driven model for promoting higher-order thinking (HOTS) through creative, practical, and critical steps exemplifies how NLP meta-frameworks can promote learner autonomy and critical reflection [31]. Therefore, NLP has emerged as a pedagogically viable strategy in ELT, reported to enhance teachers' efficacy, communication, and classroom management [32,33].

2.4. Research Gaps and Contradictions

While NLP has been applied in the educational domain, its adoption has yet to be fully explored and empirically supported within ELT. A majority of studies remain descriptive rather than empirical, with small sample sizes that limit generalizability [34]. It is even considered by some to be "pseudo-scientific" because it lacks a solid theoretical core and evidence base [35]. This paradox between the increasing practical use of NLP and skepticism in academia underscores the importance of systematic research. There is an urgent need for longitudinal, large-scale empirical studies that compare NLP with conventional teaching to assess its long-term effects on language-learning achievement [36].

In addition, NLP techniques are not consistently defined, applied, or evaluated across studies; methodological fragmentation suggests the need for a meta-synthesis to synthesize findings and construct a robust theoretical framework [7]. This study uses a systematic review and qualitative meta-synthesis to synthesize existing knowledge to inform curriculum design, teacher preparation, and classroom practice. By addressing the scattered research base, the synthesis will provide a complementary service by establishing the pedagogic efficacy and theoretical grounding of NLP within ELT [37,38].

Unlike a previous comprehensive review that addressed general language learning in NLP [39], the current review provides a more systematic and up-to-date synthesis, particularly for ESL/EFL pedagogy. This review further develops the related literature by integrating studies published since 2021 and comparing empirical findings across different methodologies, aiming to highlight notable pedagogical implications, learner effects, and knowledge gaps in NLP-based ELT.

3. Materials and Methods

In the current review, NLP was operationalized as a pedagogical and communicative model that highlights the interrelated relationships among neurological processes, language use, and observable behaviour in learning. Due to the theoretical heterogeneity and debated scientific status of NLP, the researchers limited inclusion to studies that explicitly stated their foundational theory or practical approach as NLP (e.g., anchoring, modeling, rapport-building, reframing, sensory-based learning strategies). The researchers excluded studies that employed motivational or psychological strategies not specifically related to NLP. This operational definition aimed to maintain conceptual integrity while providing an analysis sensitive to NLP-based methods, as they are now encountered in educational research.

In evidence-based education, a meta-analysis is the best approach to assess the evidence before implementing a practice. Systematic reviews with an efficacy-in-practice and utility focus aim to make results accessible, feasible,

relevant, and beneficial to the HRD field [40,41]. The present study has followed the guidance of previous publications on integrating HRD evidence with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) [42] to systematically review and appraise the existing research evidence on NLP and ELT (**Figure 1**). In addition, the PRISMA highlights the quality and reliability of systematic reviews by offering a clear, step-by-step guide to searching for and selecting studies. This becomes especially critical in qualitative synthesis, where methods may vary widely across studies and are difficult to compare. Qualitative metasynthesis was used to synthesize the results of individual studies and to conduct a rich conceptual analysis of complex human experiences and social phenomena. Unlike quantitative meta-analysis, which aggregates numerical data, qualitative meta-synthesis interprets and reframes primary findings, offering innovative theoretical insights. Overall, PRISMA and qualitative meta-synthesis provide a strong framework for systematically identifying, evaluating, and synthesizing qualitative evidence transparently and comprehensively.

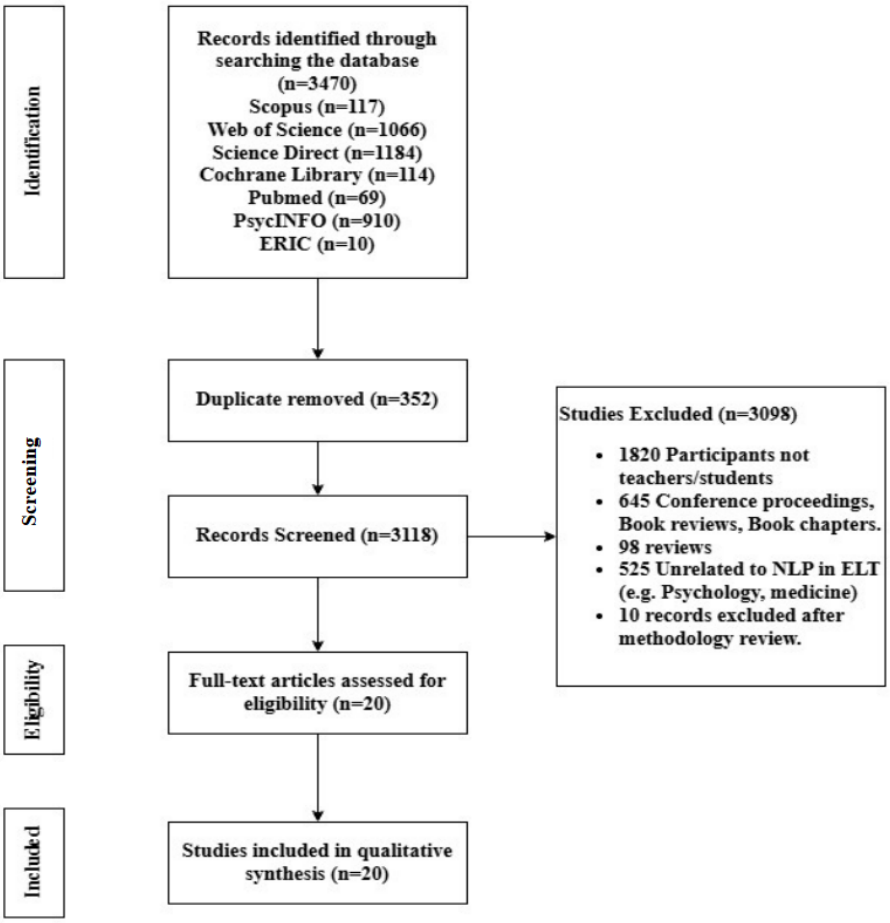

Figure 1. The PRISMA diagram is used to search, screen, and select articles.

This included the assessment criteria for studies in relation to the review question, the inclusion and exclusion criteria, the missing articles, the methodological quality of studies, and the relevance [43]. Ultimately, the researchers formulated the research question based on a detailed version of the Population, Intervention, Comparison, Outcome (PICO) framework [44]. PICO is a framework for constructing a researchable question that aids in identifying relevant information by breaking the question into four components [45]. Although the CIMO model (Context, Intervention, Mechanism, Outcome) is often used in organizational and management research to explore complex interactions within different contexts [40], the extended PICO model was chosen due to its established utility in clinical and individualized settings, which aligns closely with the personalized nature of NLP interventions.

The first database search identified 3470 records. It included studies which: (a) explicitly used NLP as the-

oretical or teaching model; (b) were carried out in ESL/EFL/ELT contexts or general English language education contexts; (c) used empirical research design-quantitative, qualitative and mixed methods research; (d) published in peer-reviewed journals, and e) written in English within the stipulated publication years. Exclusion criteria were duplicate publications, non-empirical studies, studies without a clear NLP framework, studies that were performed in contexts not related to education or language learning, and grey literature (e.g., theses and dissertations and conference abstracts). Screening occurred in both the title and abstract and in subsequent full-text reviews. Methodological quality was evaluated using established appraisal tools appropriate to the study design (MMAT, CASP, Newcastle–Ottawa Scale, and Cochrane RoB), and only studies meeting minimum quality standards and demonstrating direct relevance to the review objectives were retained, yielding a final sample of 20 studies.

Table 1 presents the application of the extended PICO framework to support study selection. It focuses on NLP teaching approaches for ESL/EFL learners and teachers. Empirical type studies that included qualitative, quantitative, mixed methods, and quasi-experimental designs were selected. The review focuses on cognitive and affective learning outcomes, and studies published between 2014 and June 2025 are included to ensure the relevance of the research evidence. The rationale for selecting the period 2014–2025 is to examine the most recent advances in NLP, particularly in ELT. NLP has become a central focus across disciplines, including psychology, education, business, healthcare, and coaching.

Table 1. Extended Population, Intervention, Control, and Outcomes (PICO) for this review.

S.No	Criteria	Inclusion Criteria	Exclusion Criteria
1	Population	English as a Second Language (ESL)/English as a Foreign Language (EFL) learners, teachers	Studies not related to English learners or the general population.
2	Intervention	NLP-based teaching strategies	Studies not involving NLP interventions
3	Comparator/Control	Any comparator, including intervention/no intervention	others
4	Outcome Measures	NLP-Based English Language Teaching/Learning Outcomes	Studies not measuring language outcomes
5	Study Design	Quasi-experiments, Mixed-Methods, Qualitative, and Quantitative Studies	Book chapters, Book reviews, and articles introducing Theories/concepts/models/applications
6	Publication Year	From 2014	To June, 2025

Over the past decade, NLP has garnered increasing attention in education and implementation, particularly for its role in various aspects of teaching and learning, such as learner motivation, engagement, and emotional intelligence [10,13]. The present review period is set from 2014 to 2025, focusing on the latest advances, trends, and approaches in NLP in ELT. An 11-year timeframe guarantees methodological soundness, applicability, and focus of the synthesis results in the current literature, excluding older studies. Following best practices in systematic review methodology, this timeframe strikes a balance between comprehensiveness and manageability, providing relevant and up-to-date insights for modern pedagogical practice and scholarly discussion [46,47].

3.1. Search Strategy

A comprehensive literature search was conducted across electronic research databases, including Scopus, Web of Science, ScienceDirect, Cochrane Library, PubMed, PsycINFO, and ERIC, for publications that integrated NLP into ELT. Keywords used included "Neurolinguistic Programming," "Neuro linguistic Programming," "Neuro-linguistic Programming," "NLP," "English Language Teaching," OR "ELT," OR "English Language Learning," or "English Language Acquisition." The exclusion criteria covered sources outside the data range from 2014 to June 2025 to ensure that recent empirical findings were included. Interventions beyond ELT, as well as approaches and methods other than NLP, were also excluded. Applications of NLP in fields such as psychology, medicine, business, nursing, sports, education, personal development, and health education were also omitted, as they are not directly related to the present study. Literature reviews and commentaries were not included, as they are typically considered secondary studies. **Table 2** presents the keywords and search strings used to identify studies that employ NLP in ELT.

Table 2. Details of the search strategy.

Database	Timespan	Search Strategy
Scopus	2014–June 2025	TITLE-ABS-KEY ("Neurolinguistic Programming") OR TITLE-ABS-KEY ("Neuro linguistic Programming") OR TITLE-ABS-KEY ("Neuro-linguistic Programming") OR TITLE-ABS-KEY ("NLP") AND TITLE-ABS-KEY ("English Language Teaching") OR TITLE-ABS-KEY ("English Language Learning") OR TITLE-ABS-KEY ("English Language Acquisition") AND PUBYEAR > 2014 AND PUBYEAR < 2025
WOS	2014–June 2025	"Neurolinguistic Programming" (Topic) or "Neuro linguistic Programming" (Topic) or "Neuro-linguistic Programming" (Topic) or "NLP" (Topic) and "English Language Teaching" OR "ELT" (Topic) or "English Language Learning" (Topic) or "English Language Acquisition" (Topic) and 2014 or 2015 or 2016 or 2017 or 2018 or 2019 or 2020 or 2021 or 2022 or 2023 or 2024 or 2025 (Publication Years)
ScienceDirect	2014–June 2025	"Neurolinguistic Programming" OR "Neuro linguistic Programming" OR "Neuro-linguistic Programming" OR "NLP" AND "English Language Teaching" OR "English Language Learning" OR "English Language Acquisition"
Cochrane Library	2014–June 2025	"Neurolinguistic Programming" OR "Neuro linguistic Programming" OR "Neuro-linguistic Programming" OR "NLP" AND "English Language Teaching" OR "ELT" OR "English Language Learning" OR "English Language Acquisition" in Title Abstract Keyword—with Cochrane Library publication date Between Jan 2014 and June 2025 (Word variations have been searched)
PubMed	2014–June 2025	"Neurolinguistic Programming" OR" Neuro linguistic Programming" OR "Neuro-linguistic Programming" OR "NLP" AND "English Language Teaching" OR "English Language Learning" OR "English Language Acquisition" Filters: Full text, from 2014/1/1 to 2025/6/30
Psyndex	2014–June 2025	(DB = PSYNDEX) "Neurolinguistic Programming" OR" Neuro linguistic Programming" OR "Neuro-linguistic Programming" OR "NLP" AND "English Language Teaching" OR "English Language Learning" OR "English Language Acquisition" PY ≥ 2014 PY ≤ 2025 "Neurolinguistic Programme and English Language Teaching" PY ≥ 2014 PY ≤ 2025
ERIC	2014–June 2025	"Neurolinguistic Programming" OR" Neuro linguistic Programming" OR "Neuro-linguistic Programming" OR "NLP" AND "English Language Teaching" OR "English Language Learning" OR "English Language Acquisition".

3.2. Outcome Measures

Affective and cognitive outcomes, such as emotional intelligence, motivation, and reductions in anxiety, measured using validated instruments or qualitative data obtained through participants' interviews and observations, were included. Both quantitative and qualitative indicators were considered during synthesis to capture the multidimensional impact of NLP interventions. The study sought to investigate the effectiveness of NLP in ELT. A comprehensive search of the social sciences, arts, humanities, and psychology literature was conducted to define these outcomes. Databases were selected for their broad, diverse coverage of peer-reviewed literature in education, psychology, and linguistics related to NLP, including high-quality, rigorous studies on the application of NLP in ELT in academic settings. Findings related to NLP in ELT were identified by searching for keywords such as motivation, language learners, teachers, English language teaching, instructional strategy, emotional intelligence, professional identity, cognitive development, and neuro-linguistic programming in research articles. These keywords ensured the inclusion of studies exploring psychological and cognitive aspects of teaching and learning. The process of selecting studies for this meta-synthesis is illustrated in the PRISMA flow diagram in **Figure 1**, which shows the number of records identified, screened, assessed for eligibility, and included in the final review.

3.3. Study Selection Process

A systematic review was conducted in accordance with the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines. A total of 3470 records were identified across seven databases. The inclusion criteria were met by 20 studies after eliminating duplicates and screening according to PICO (**Table 1**), which limited the studies to ESL/EFL learners or teachers who used NLP-based teaching interventions and reported cognitive, affective, or linguistic outcomes. Methodological quality and relevance were assessed using four standardised checklists (Cochrane RoB, CASP, NOS, MMAT). Studies with a quality score of ≥60% were synthesized. In the inclusion/exclusion phase, some studies were excluded by researchers; For instance, not involving teachers or students as participants (n = 1820), not relevant to ELT or English language learning on NLP studies (n = 525), conference proceedings, book reviews, and chapters of a book (n = 645). Finally, 20 relevant NLP studies are selected for the analysis.

The 2014–2025 period was chosen to reflect the period during which the most pertinent and methodologi-

cally sound advances in NLP use in ELT occurred. The revival of academic interest in NLP appears to have begun in 2014, with its renewal clearly paralleling the increasing prominence of cognitive, affective, and neuro-pedagogical perspectives on language teaching and learning. This era is also the time for a move from purely theoretical or anecdotal treatments of NLP to a more empirical, classroom-based approach that uses both qualitative and quantitative methodologies. In the studies published after 2014, NLP was more and more investigated in connection to learners' motivation, emotional intelligence, and teacher effectiveness, in line with contemporary educational theories like affective learning and positive psychology. Furthermore, limiting the review to 2014–2025 ensures inclusion of studies that reflect current technological integration in ELT, such as digital learning environments and AI-assisted pedagogy, which were largely absent from earlier research. Thus, this time frame provides both temporal relevance and theoretical coherence by focusing on the contemporary evolution of NLP within the modern ELT landscape.

3.4. Thematic Synthesis Method and Coding Procedure

Experimental and quasi-experimental studies, quantitative non-experimental surveys, qualitative studies, and mixed-methods studies were included in the review. As the methods used across these designs are heterogeneous, the researchers did not conduct a heterogeneity-based statistical meta-analysis. Instead, the review utilised narrative meta-synthesis to synthesise results thematically across studies, yet retained design-specific differences. Quantitative outcomes were examined for consistency and effect direction, whereas qualitative findings were used to provide contextual and explanatory insights. Mixed-methods studies contributed integrative perspectives, enabling triangulation of results. This approach allowed for a coherent synthesis of diverse evidence while maintaining methodological rigor.

Thematic synthesis was used in the study and consisted of line-by-line coding, the creation of descriptive themes, and the generation of analytical themes. Themes were inductively generated through the constant comparison method across studies and verified through continuous revision and comparison for review. The qualitative synthesis in this study was conducted using the thematic synthesis approach developed by Thomas and Harden (2008), which comprises three main stages: initial line-by-line coding, development of descriptive themes, and generation of analytical themes [48]. In the first phase, passages of text were read, and codes were organized by applying consistent themes or patterns. For example, the statement "students experience less anxiety when teachers integrate anchoring techniques" was coded as "reduced anxiety," "anchoring," and "emotion regulation." In the second stage, these preliminary codes were further grouped into higher-order descriptive categories that captured commonalities across the data.

Three central decoding themes were identified at this level: Motivational impact, consisting of codes regarding enhanced confidence, positive feelings, and self-efficacy; Skill development, involving advancements in communication skills, pronunciation, and reading comprehension; and Teacher perspectives, reflecting aspects of rapport building with learners, innovative pedagogy, and reflective classroom practice. The third and final stage resulted in the development of analytical themes that reflected understandings of the meaning and significance of NLP in English Language Teaching. These higher-order themes included Transforming Affective Barriers into Learning Opportunities, which exemplifies the way in which NLP helps lower anxiety and fear among learners; Teacher Adaptation and Pedagogical Innovation, which portrays teacher application of sensory and modeling techniques; and Integrative Skill Enhancement, also described as the use of NLP strategies to boost vocabulary, grammar, and communicative capacity. This systematic process enabled the synthesis of diverse findings into coherent interpretive themes, revealing the multifaceted impact of NLP techniques on language teaching and learning. The authors independently coded and reviewed the data to ensure analytic rigour. Discrepancies in theme development were resolved through iterative discussion, achieving consensus validation. This process enhanced the credibility and confirmability of the thematic synthesis.

3.5. Quality Scoring: Assessing the Risk of Bias

Risk of bias evaluation is an important component of systematic reviews and a fundamental step in assessing the reliability and validity of included studies [49,50]. The methodological quality of these studies was assessed using standardized instruments and tools relevant to their respective study designs. Four widely recognized instruments for risk of bias assessments were used in the present study: (a) Cochrane Risk of Bias Tool, (b) CASP checklist, (c) Newcastle-Ottawa Scale (NOS), and (d) MMAT. The Cochrane Risk of Bias (RoB) tool examines aspects such as

randomisation procedures, allocation concealment, blinding, completeness of outcome data, and selective reporting for quantitative randomised studies [51]. Next, the CASP checklist is used to assess the clarity of research aims, the suitability of the methodology, data collection, and analysis, ethical considerations, and the overall value of the findings in qualitative studies [52]. Following this, the NOS evaluates non-randomised quantitative studies with respect to target group selection, comparability, and outcome assessment [53]. Lastly, the MMAT assesses the quality of both qualitative and quantitative components and the extent to which they are integrated in mixed-methods studies [54].

A standardised scoring methodology is used to convert instrument-specific criteria into percentage scores. Only studies with a quality score of at least 60% were included in the synthesis; those scoring below this threshold were excluded. Additionally, the results of these assessments determined the contribution of each study to the thematic synthesis, with higher-quality studies receiving greater interpretive emphasis. The summary of the quality assessment is presented in **Table 3**. The included studies were evaluated based on methodological rigour, relevance, and contribution weight, and the outcomes of these evaluations are comprehensively discussed in the risk of bias assessment.

Table 3. Summary of Quality Appraisal.

Study ID	Study Design	Appraisal Tool Used	Quality Score (%)	Methodological Soundness	Applicability	Level of Contribution	Included in Synthesis
Kudliskis, 2014 [55]	Mixed Methods	MMAT	68	Moderate	Moderate	Moderate	Yes
Lashkarian and Sayadian, 2015 [18]	RCT	Cochrane RoB	65	Moderate	Moderate	Moderate	Yes
Hosseinzadeh and Baradaran, 2015 [56]	Non-RCT	NOS	82	High	High	High	Yes
Hamid and Marzieh, 2017 [57]	RCT	Cochrane RoB	62	Moderate	Moderate	Moderate	Yes
Caballero and Rosado, 2018 [58]	RCT	Cochrane RoB	68	Moderate	Moderate	Moderate	Yes
Keezhatta, 2019 [19]	Qualitative	CASP	60	Moderate	Moderate	Moderate	Yes
Subbu Nisha and Rajasekaran, 2019 [32]	Qualitative	CASP	60	Moderate	Moderate	Moderate	Yes
Keezhatta, 2020 [33]	Mixed Methods	MMAT	74	High	Moderate	High	Yes
Hedayat et al., 2020 [20]	Qualitative	CASP	76	High	Moderate	High	Yes
Sunitha et al., 2021 [10]	Non-RCT	NOS	74	Moderate	Moderate	Moderate	Yes
Zeb and Hameed, 2021 [59]	Qualitative	CASP	70	Moderate	Moderate	Moderate	Yes
Rayati, 2021 [22]	Qualitative	CASP	78	High	High	High	Yes
Purnama et al., 2023 [12]	Quantitative (Non-RCT)	NOS	75	Moderate	High	Moderate	Yes
Almosa, 2023 [60]	Quantitative (RCT)	Cochrane RoB	60	Moderate	High	Moderate	Yes
Zhang et al., 2023 [61]	Quantitative (RCT)	Cochrane RoB	70	Moderate	High	High	Yes
Rosa et al., 2023 [62]	Non-RCT	NOS	78	High	High	High	Yes
Rayati, 2024 [63]	Mixed Methods	MMAT	92	High	High	High	Yes
Zarfsaz and Salamat, 2024 [64]	Non-RCT	NOS	80	High	High	High	Yes

Table 3. *Cont.*

Study ID	Study Design	Appraisal Tool Used	Quality Score (%)	Methodological Soundness	Applicability	Level of Contribution	Included in Synthesis
Rahman and Jinu, 2024 [65]	Mixed Methods	MMAT	88	High	High	High	Yes
John et al., 2025 [66]	Experimental RCT	Cochrane RoB	84	High	High	High	Yes

3.6. Data Extraction and Synthesis

Results of the searches were summarised, and articles were selected as potentially relevant when their titles suggested a relationship to the topic covered in this review. The first author brought specific expertise in NLP, and the coauthor assessed the inclusion process to verify rigor and control for bias. This initial part of the selection process was then completed by checking the texts of these shortlisted articles, with both authors being involved in this process. The authors followed up and discussed whether each study met all the eligibility criteria. Searching the references from backward and forward referencing identification did not reveal any additional studies for inclusion in this review. It is important to note that an expanded version of the data extraction template was used to organize the details of the research articles included [23]. This study included the following core information: publication details (authors, year, and country), study design and setting, participant characteristics, demographic data, and details of the intervention.

The synthesis of evidence was conducted using a rigorous, systematic approach. **Table 4** summarizes the relevant information of each study (author, year, context, participants, methodology, and results) that was extracted into a standard table. For qualitative data, inductive thematic coding was used to develop initial codes that were then clustered together under larger themes that describe cognitive-emotional and pedagogical perspectives related to NLP in ELT. Quantitative findings were mapped to these themes to allow triangulation and a richer understanding of NLP's impact. The integrated data were then synthesized through iterative refinement to identify overarching patterns and relationships. The synthesis of key findings highlights the main themes, subthemes, and illustrative examples, thereby enhancing the transparency and readability of the analysis.

Table 4. Data Extraction and Coding.

Author(s), Year, Country	Study Design	Participant Characteristics	NLP Intervention	Outcome Measures
Kudliskis, 2014, UK [55]	Mixed-Methods	12 students with mild SEN (ages 11–13)	Reframing, Meta-Model of Language	Student Perception of Learning, Teacher-Student Communication, Emotional and Cognitive Engagement
Lashkarian and Sayadian, 2015, Iran [18]	Quasi-experimental (Pretest-Post-test with Control Group)	60 Iranian EFL learners (13–14 years old, female)	Reframing, Anchoring, Rapport Building	Motivation, Learning Achievement, Teacher's Success
Hosseinzadeh and Baradaran, 2015, Iran [56]	Correlational Study	129 Iranian EFL teachers (22–45 years old)	General Autonomy, Curriculum Autonomy, Total Autonomy	Teacher Autonomy
			Flexibility, Anchoring, Elicitation, Modeling, Individual Differences, Leading, Rapport Building, Emotional, and Cognitive Boosters	NLP
Hamid and Marzieh, 2017, Iran [57]	Quasi-Experimental (Pretest-Post-test)	30 Iranian female EFL teachers	Anchoring, Flexibility, Elicitation, Modeling, Individual Differences, Leading, Rapport Building, Emotional and Cognitive Boosters	Reflective Teaching Practices
Caballero and Rosado, 2018, Colombia [58]	Quasi-experimental (Pretest-Post-test with Control Group)	43 university students (B1 English level)	Anchoring, Sensory-Based Learning (Visual, Auditory, Kinesthetic), Associative Memory	Pronunciation Accuracy of Regular Past Tense Verbs

Table 4. *Cont.*

Author(s), Year, Country	Study Design	Participant Characteristics	NLP Intervention	Outcome Measures
Keezhatta, 2019, India [19]	Qualitative (Thematic Analysis of Interviews)	20 NLP-trained English teachers from high schools	Anchoring, Visualization, Reframing, VAK (Visual, Auditory, kinesthetics), Storytelling, Role Modeling	Teacher Perception, Student Motivation, Communication Skills, Classroom Interaction
Subbu Nisha and Rajasekaran, 2019, India [32]	Conceptual and Practical Framework-Based Study	-	Learning Strategy, Memory Strategy, Spelling Strategy, Creativity Strategy, Motivation Strategy	Employability Skills (Learning, Listening, Writing, Problem-Solving, Assertiveness)
Keezhatta, 2020, Saudi Arabia [33]	Mixed-Methods Study (Survey + Thematic Analysis of Interviews)	250 undergraduate students (Survey) + 18 faculty members (Interviews)	Technology-Assisted Learning, Blended Learning, Task-Based Learning, Role-Play, Project-Based Learning, NLP-Based Learning, Lexical Approach, Inquiry-Based Learning, Eclectic Method	Student Motivation, Learning Effectiveness, and Challenges Faced
Hedayat et al., 2020, Iran [20]	Conceptual and Literature Review	-	Anchoring, Rapport Building, Mirroring, Metamodeling, Visualization, Reframing	Teacher Success, Learner Achievement, Classroom Communication, Self-Efficacy
Sunitha et al., 2021, India [10]	Experimental Study (Pretest-Post-test with Control Group)	80 secondary school students (40 in the experimental group, 40 in the control group)	Rapport, Sensory Awareness, Outcome Thinking, Behavioural Flexibility	Receptive Skills (Reading and Listening)
Zeb and Hameed, 2021, Pakistan [59]	Theoretical and Exploratory Study	-	Analyzing linguistic patterns such as presupposition, mind reading, embedded commands, pacing, and cause-and-effect relationships in teacher-student communications.	Enhancing rapport, improving teacher-student communication, fostering motivation, and increasing language learning efficiency.
Rayati, 2021, Iran [22]	Qualitative research with thematic analysis	20 Iranian EFL teachers (12 females, 8 males)	Rapport, Flexibility, Pacing, Modelling, VAK, Anchoring, Elicitation, Reframing	Enhanced teacher-student communication, increased participation, and better classroom management
Purnama et al., 2023, Indonesia [12]	Quantitative (Survey-Based Study)	150 foreign language teachers from various high schools	Rapport, Anchoring, Modeling, Eye Accessing Cues, Outcomes, Visualization	Teacher preparedness, NLP familiarity, usage, and effectiveness
Almosa, 2023 Saudi Arabia [60]	Experimental (Pretest-Post-test with Control Group)	200 high school students (50 in each group)	Anchoring, Rapport, Modeling, Reframing	Listening, Speaking, Reading, Writing, Grammar, Vocabulary
Zhang et al., 2023, Iran [61]	Experimental study (Pretest-Post-test with Control Group)	50 advanced-level female EFL learners	Logical levels, Meta-model, Milton Model, Goal Setting, Time Management, Reframing, Role-playing	Academic Achievement, Emotional Intelligence (EI), Critical Thinking
Rosa et al., 2023, Brazil [62]	Experimental (Pretest-Post-test)	38 university students (27 females, 11 males)	Body language training, vocal projection exercises, articulation practice, anxiety management techniques	Verbal and non-verbal communication, audience engagement, emotional regulations
Rayati, 2024, Iran [63]	Sequential Explanatory Mixed Methods Study	148 Iranian EFL teachers (both genders) 20 teachers participated in a 4-week NLP training workshop	Rapport, Flexibility, Pacing, Modeling, Leading, Anchoring, Individual Differences, Elicitation, Reframing	Teacher Professional Identity (TPI)
Zarfsaz and Salamat, 2024, Turkey [64]	Quasi-experimental (Pretest-Post-test with Control Group)	30 female EFL learners (aged 15–18)	Goal Setting, Learning Preferences, Sensory-Based Learning, Emotional Engagement	Progress in Writing Ability

Table 4. *Cont.*

Author(s), Year, Country	Study Design	Participant Characteristics	NLP Intervention	Outcome Measures
Rahman and Jinu, 2024, India [65]	Mixed Methods Quasi-experimental (pre-post-test with control group and Qualitative thematic analysis)	70 D/HH undergraduates 10 ESL Instructors	Anchoring Swish Pattern VAK Role-play	Strengthen Grammar, vocabulary, confidence, communication skills, and engagement.
John et al., 2025 [66]	Experimental (pre-post-test with control group)	104 First-year MBA students	Anchoring, mirroring, and sensory acuity training	Enhancing English speaking skills

3.7. Risk of Bias

Methodological quality was evaluated using checklists tailored to each study design. Select criteria were applied to quantitative studies, including sampling methodology, clarity of intervention, measurement of outcomes, and control of confounders, and to qualitative studies, relating to credibility and methodological responsibility for analysis. Mixed-methods research designs were evaluated using integrated quality criteria. Formal statistical tests for publication bias were not performed due to the small number of included studies and the diverse study designs. Instead, publication bias was minimized through comprehensive database searching and inclusion of studies from multiple sources. Findings were therefore interpreted cautiously, with potential bias acknowledged in the limitations section.

3.7.1. Mixed Method—Assessment of Risk of Bias

It is necessary to evaluate the risk of bias in methods when it comes to mixed-method studies for the purpose of guaranteeing the reliability of research results. The MMAT is a systematic tool and guide for appraising mixed-methods studies [54]. Some studies have employed mixed-method research design in order to collect quantitative and qualitative data from prevention [33,55,63,65]. These articles were assessed using a comprehensive framework that included screening questions, qualitative and quantitative analyses, integration of mixed-methods findings, and synthesis of conclusions. **Table 5** presents the multifaceted approach that enabled a rigorous, holistic assessment of the studies, thereby enhancing the validity and depth of the review. The research questions in each study are clearly addressed. However, in two studies [33,65], the qualitative data are insufficient. The quantitative components have raised concerns regarding sampling methods and non-response bias; however, the statistical analyses employed are consistently appropriate. The mixed-method study is effectively conducted in all the studies, with well-supported methodological choices and clear relationships between the qualitative and quantitative results. Although there is a need to improve sampling strategies and reduce non-response bias to strengthen the research, the results are adequately supported. The current review emphasizes the value of MMAT in assessing methodological strengths and limitations, further highlighting its role in enabling valid and reliable mixed-methods research.

Table 5. Mixed Method Study—Assessment of Risk of Bias.

Components	Questions	Kudliskis (2014) [55]	Keezhatta (2020) [33]	Rayati (2024) [63]	Rahman and Jinu (2024) [65]
Screening Questions (General)	Are the research questions clear?	Yes	Yes	Yes	Yes
	Does the data address the research questions?	Yes	Yes	Yes	Yes
Qualitative Component Evaluation	Is the qualitative approach appropriate to answer the research question?	Yes	Yes	Yes	Yes
	Are the qualitative data collection methods adequate?	Partially	Partially	Yes	Yes

Table 5. *Cont.*

Components	Questions	Kudliskis (2014) [55]	Keezhatta (2020) [33]	Rayati (2024) [63]	Rahman and Jinu (2024) [65]
Qualitative Component Evaluation	Are the findings derived from the data?	Yes	Yes	Yes	Yes
	Is the interpretation of results supported by the data?	Yes	Yes	Yes	Yes
Quantitative Component Evaluation	Is the sampling strategy relevant to address the quantitative research question?	Partially	Yes	Partially	Partially
	Are the measurements appropriate?	Yes	Yes	Yes	Yes
	Is there a low risk of non-response bias?	No	No	Partially	Yes
	Are the statistical analyses used appropriately?	Yes	Yes	Yes	Yes
Mixed Methods Integration	Is there an adequate rationale for using a mixed-methods design?	Yes	Yes	Yes	Yes
	Are the different components of the study integrated effectively?	Yes	Yes	Yes	Yes
	Are discrepancies between qualitative and quantitative results explained?	Yes	Yes	Yes	No
Interpretation and Conclusions	Are the conclusions substantiated by the results?	Yes	Yes	Yes	Yes

3.7.2. Cochrane—Assessment of Risk of Bias

The Cochrane Risk of Bias Tool is used to assess the risk of bias in the randomized trials included in this review [52]. This review covers the randomized trials reported in some studies [12,18,19,57,58,60,61,66]. Random sequence generation has a low risk in research [18], but the risk is high or unclear for other studies. Allocation concealment is generally unclear and poses a high risk in these studies. The risk of bias related to blinding of participants and personnel, as well as blinding of outcome assessment, was typically judged to be high or unclear in the reviewed studies [12,19,58,60,61,66]. This reflects the inherent difficulties of implementing effective blinding in behavioral and educational intervention research. However, the risk of bias from selective reporting and incomplete outcome data was generally rated as low, indicating strong data reporting practices and appropriate handling of missing data across most studies. The assessment of other potential sources of bias was mixed, with some studies showing a low risk, while others were rated as unclear or high risk. These results highlight the variability in methodological quality and underscore the need for careful interpretation of findings within this body of literature. **Table 6** presents the assessment of the Cochrane risk of bias in studies using randomized controlled trials.

Table 6. Cochrane—Assessment of Risk of Bias.

Component	Lashkarian and Sayadian (2015) [18]	Hamid and Marzieh (2017) [57]	Caballero and Rosado (2018) [58]	Keezhatta (2019) [19]	Purnama et al. (2023) [12]	Almosa (2023) [60]	Zhang et al. (2023) [61]	John et al. (2025) [66]
	Risk Level	Risk Level	Risk Level	Risk Level	Risk Level	Risk Level	Risk Level	Risk Level
Random Sequence Generation	Low	High	Unclear	High risk	Unclear	Unclear	Unclear	Unclear
Allocation Concealment	Unclear	High	Unclear	NA	Unclear	Unclear	Unclear	High
Blinding of Participants/Personnel	High	High	High	NA	High	High	High	High
Blinding of Outcome Assessment	Unclear	High	Unclear	High	Unclear	Unclear	High	Unclear
Incomplete Outcome Data	High	Low	Low	Low	Low	Low	Low	Low
Selective Reporting	Unclear	Low	Low	Unclear	Low	Low	Low	Low
Other Bias	Low	Low	Unclear	High	Unclear	Low	Unclear	High

3.7.3. Critical Appraisal Skills Programme (CASP)—Assessment of Risk of Bias

The CASP Qualitative Checklist is used to assess the risk of bias in qualitative studies and to enhance the rigor and credibility of the review [52]. It is clear that some studies have well-defined objectives and produce meaningful findings [20,21,32,59]. Most of these studies have utilized appropriate qualitative methods, except for one [32]. Certain studies exhibit issues such as unclear links between the study design and stated aims, improper recruitment processes, varied data collection techniques, failure to address the research question, relationships between researchers and participants, and ethical concerns. Despite these limitations, the studies collectively reinforce the existing literature on NLP in ELT. **Table 7** demonstrates the assessment of risk of bias using the CASP checklist in the qualitative studies.

Table 7. CASP—Assessment of Risk of Bias.

Qualitative Study	Subbu Nisha and Rajasekaran (2019) [32]	Hedayat et al. (2020) [20]	Zeb and Hameed (2021) [59]	Rayati (2021) [22]
Was there a clear statement of the aims?	Yes	Yes	Yes	Yes
Is a qualitative methodology appropriate?	No	Yes	Yes	Yes
Was the research design appropriate to address the aims?	Cannot tell	Yes	Cannot tell	Yes
Was the recruitment strategy appropriate to the aims?	No	Cannot tell	No	Cannot tell
Was the data collected in a way that addressed the research issue?	No	Cannot tell	No	Yes
Has the relationship between the researcher and participants been adequately considered?	Cannot tell	No	Cannot tell	Cannot tell
Have ethical issues been taken into consideration?	No	Cannot tell	No	Yes
Was the data analysis sufficiently rigorous?	Yes	Cannot tell	Cannot tell	yes
Is there a clear statement of findings?	Yes	Yes	Yes	Yes
How valuable is the research?	Yes	Yes	Yes	Yes

3.7.4. Cohort—Assessment of Risk of Bias

The Newcastle-Ottawa Scale (NOS) is used to assess the risk of bias in non-randomized trial studies for quality evaluation [53]. This review includes non-randomized trials reported in studies [10,56,62,64]. The risk of bias is assessed based on three elements: selection, comparability, and outcome. Most studies have demonstrated high representativeness in the exposed cohort and accurately measured exposure levels, but few have confirmed that a comparable non-exposed cohort was selected. Half of the studies found that the outcome of interest was absent at baseline. Comparability of cohorts is ensured in two studies by considering confounding variables [56,64]. The outcome measure is consistently robust across all studies, except one, which has sufficient follow-up and completion [10]. The included studies demonstrate methodological rigor in how outcomes are measured, but show limitations in controlling for confounding variables and in selecting appropriate non-exposed (control) groups. Therefore, their results should be interpreted with care, as these methodological issues may affect internal validity and the reliability of the observed associations. **Table 8** presents the risk of bias evaluation using the NOS in non-randomized trial studies.

Table 8. Cohort Assessment of Risk of Bias.

Section	Components	Hosseinzadeh and Baradaran (2015) [56]	Sunitha et al. (2021) [10]	Rosa et al.,(2023) [62]	Zarfsaz and Salamat (2024) [64]
		Stars	Stars	Stars	Stars
Selection	Representativeness of the exposed cohort:		*	*	*
	Selection of the non-exposed cohort				*
	Ascertainment of exposure	*	*	*	*

Table 8. *Cont.*

Section	Components	Hosseinzadeh and Baradaran (2015) [56]	Sunitha et al. (2021) [10]	Rosa et al.,(2023) [62]	Zarfsaz and Salamat (2024) [64]
		Stars	Stars	Stars	Stars
Selection	Demonstration that the outcome of interest was not present at the start of the study			*	*
Comparability	Comparability of cohorts based on the design or analysis	*			*
	Control for confounding factors				
Outcome	Assessment of outcome	*	*	*	*
	Was the follow-up long enough for outcomes to occur:			*	*
	Adequacy of follow-up of cohorts	*		*	*

Note: Each star (*) indicates that the study has met the criterion for a low risk of bias in the respective domain as per the NOS assessment.

3.8. Qualitative Meta-Synthesis of NLP in ELT

The present study synthesizes findings from 20 studies that investigated the effects of NLP in ELT. The thematic synthesis adopted an inductive approach to enhance methodological transparency within the scope of the review. This study applies a three-step qualitative synthesis approach to bring together and interpret the results of the included qualitative studies [44]. This method enables the process whereby: (1) findings are drawn by line-by-line coding; (2) descriptive themes emerge; and (3) analytical themes develop. By employing this inductive approach, patterns and categories were not predetermined but emerged naturally from the data, supporting a grounded understanding of the perspectives presented in the included studies. This approach enabled a detailed synthesis of research findings, ensuring that the themes accurately reflected the empirical realities of research on NLP in ELT. A detailed summary of the methods and findings of this inductive thematic synthesis is presented in the following section. For this review, the phrase "significant impact" denotes the repetition and consistency of themes across studies rather than statistical significance. The level of evidence was not relied on; instead, the decision was based on thematic saturation, methodology quality weight, and triangulated findings, rather than meta-analytic effect sizes.

4. Findings

4.1. Thematic Synthesis Framework

4.1.1. Line-by-Line Coding

Common uses of NLP in ELT are identified through an analysis of qualitative data from the included studies. It focuses on a wide range of aspects, including pedagogical approaches, student engagement in the learning process, teaching experience, language-learning effects, and operational issues. In the selected articles, various NLP methods are applied, including rapport building, reframing, anchoring, sensory-based learning, mirroring, and guided visualisation [18,55–58,60]. The interventions demonstrate that NLP techniques enhance learner participation by increasing engagement, self-efficacy, motivation, and reducing anxiety [19,22,33,57,61]. Additionally, teacher feedback indicates that those who received NLP training exhibit improved classroom management, rapport with learners, and professional identity [10,12,32,56,63]. NLP strategies are also associated with improved language learning outcomes for English as a Foreign Language (EFL) and English as a Second Language (ESL) learners [10,58,60,64]. Moreover, institutional barriers, such as a lack of professional training courses and difficulties integrating conventional curricular frameworks, are identified as challenges in implementing NLP [20, 22, 32, 62]. NLP-influenced educational interventions have been shown to increase confidence, adaptive communication, and engagement [65]. They also establish a safe, supportive environment and increase confidence, thereby reducing fear of public speaking [66]. The items coded as themes serve as the basis for an expansive thematic analysis that yields a coherent interpretation of the NLP's role in ELT and its contributions to pedagogical principles.

4.1.2. Descriptive Themes

The coded and grouped qualitative data were further analyzed to identify emerging descriptive themes, facilitating interpretation and ensuring the transparency of the analysis. It demonstrates the wide range of NLP applications in ELT. There is evidence that NLP increases learners' emotional intelligence, cognitive skills, and knowledge retention, thereby contributing to emotional and cognitive development [55,58,61]. It also enhances teacher efficacy and improves adaptability through better classroom management [19,56,57,59,63]. Research indicates that NLP affects language learning in ELT, with particularly noticeable effects on reading and writing skills, pronunciation, and composition [10, 18, 58]. Moreover, NLP has been identified as a successful motivational approach that reduces learning anxiety and increases learner motivation [12,19,20,33,61]. The practical application of NLP strategies promotes greater learner confidence, enhanced communication skills, increased classroom participation, and more positive perceptions of inclusivity [65]. Psychological benefits include confidence, self-awareness in communication, classroom interaction facilitated by confidence-building, and reduced anxiety [62]. While these benefits are clear, challenges in implementing NLP strategies also exist, with teachers and learners facing obstacles such as institutional limitations and a lack of sufficient NLP training [20,22,32,62,64]. The themes outlined offer a comprehensive understanding of NLP's pedagogical applications and highlight its potential advantages.

4.1.3. Analytical Themes

In addition to descriptive themes, higher-level analytic themes are introduced to provide deeper insight into NLP in ELT. NLP has been conceived as a comprehensive learning system that acknowledges cognitive, affective, and linguistic influences on the learner's development [55,58,61,64]. It is believed to be a tool for change, with NLP-trained teachers reporting significant changes in learner relationships, teaching strategies, and teacher enthusiasm [32,56,59,63]. NLP has been shown to support long-term learning retention, with techniques such as guided visualisation and sensory-based learning enhancing memory over time [19,58,60]. Despite these benefits, implementing NLP often faces institutional and structural barriers, including resistance and a lack of formal teacher training programs [20, 22, 32, 62]. NLP strategies, particularly in advanced ESL instruction, empower D/HH (Deaf and Hard of Hearing) students by promoting emotional engagement, aligning pedagogical methods with visual learning strengths, and maintaining motivation through inclusive teaching practices [65]. In academic speaking contexts, NLP serves as a transformative pedagogical tool that develops learner-centredness, emotional robustness, and fluency of expression [66]. The analysis themes presented provide a perspective on the multi-dimensional impact of NLP in ELT, its potential to improve student learning and teacher effectiveness. The study also acknowledges the structural obstacles that must be overcome before it can be more widely adopted.

4.2. Thematic Findings

Three-Step Thematic Synthesis Method

This study is a systematic review of the works related to NLP effects in ELT in terms of thematic synthesis. This review adopts the three-stage thematic synthesis technique recommended by Thomas and Harden, comprising line-by-line coding; the creation of descriptive themes and the generation of analytical themes to facilitate deeper analysis [48]. The studies presented in **Table 9** demonstrate diverse applications and benefits of NLP in ELT. NLP has been found to improve learner engagement and motivation, as well as teacher learner relations [18,19,55,57]. Likewise, it has been shown that NLP can enhance various language competencies, including pronunciation, reading, writing, and public speaking [10, 58, 64]. It also promotes teacher autonomy, reflection, and identity, which are essential for effective teaching [56, 63]. Additionally, NLP enhances cognitive and emotional skills, including emotional intelligence, classroom management, and introspective practice [57,61]. Techniques such as mirroring, anchoring, and embedded commands have been shown to support learning and communication [20,59]. However, the effective use of NLP depends on structured training and institutional support, which remain significant challenges [12, 19, 60]. The full potential of NLP can only be realised with adequate training and its integration into teacher education programmes and curricula [22,60].

Table 9. Summary of NLP Studies.

Study ID	Study Focus	Line-by-Line Coding	Descriptive Themes	Analytical Themes
Kudliskis, 2014 [55]	NLP in Teaching Assistant (TA)-student relationships	Positive reinforcement improved engagement: TA communication affected motivation	1. Effect of positive framing. 2. The TA-student interaction impacts learning. 3. External obstacles limit NLP effects.	1. NLP as a teaching tool. 2. The function of TAs goes beyond academic support. 3. Long-term NLP interventions are required.
Lashkarian and Sayadian, 2015 [18]	NLP for EFL motivation	NLP techniques augmented English proficiency and classroom interaction	1. NLP increases motivation. 2. NLP promotes teacher-student relationships. 3. NLP upgrades language performance.	1. NLP enriches a growth mindset. 2. It upgrades teaching efficacy. 3. It should be included in the ELT techniques.
Hosseinzadeh and Baradaran, 2015 [56]	NLP and teacher autonomy	General autonomy linked to NLP use; curriculum autonomy not affected	1. NLP and Teacher Autonomy. 2. Limited influence on curriculum autonomy. 3. NLP enhances classroom management.	1. NLP empowers the teachers. 2. Institutional support required. 3. NLP as a tool for professional development
Hamid and Marzieh, 2017 [57]	NLP in reflective teaching	NLP training, advanced teacher reflection, and classroom interaction	1. NLP promotes reflective teaching. 2. Strengthened teacher-student interactions. 3. NLP elevates teaching efficacy.	1. NLP fosters reflective thinking. 2. It is an instructional resource. 3. It should be included in teacher training programs
Caballero and Rosado, 2018 [58]	NLP in pronunciation learning	NLP techniques refined pronunciation accuracy in EFL learners	1. NLP fosters pronunciation. 2. Positive Student Engagement. 3. NLP helps with challenging sounds.	1. NLP personalized learning. 2. It enriches long-term retention. 3. It supports pronunciation teaching.
Keezhatta, 2019 [19]	NLP in ELT classrooms	NLP techniques increased motivation and engagement in English learning	1. NLP raises engagement. 2. NLP advances teaching efficacy. 3. Challenges in NLP adoption	1. NLP promotes active engagement. 2. It makes teaching more dynamic. 3. Need for structured NLP training.
Subbu Nisha and Rajasekaran, 2019 [32]	NLP for employability skills	NLP helped with problem-solving, communication, and assertiveness	1. NLP upgrades cognitive skills. 2. NLP elevates engagement. 3. NLP increases motivation.	1. NLP strengthens memory. 2. It elevates professional preparation. 3. Its training needs greater structure.
Keezhatta, 2020 [33]	NLP in Saudi EFL programs	NLP (role-play, task-based learning) increased student motivation	1. NLP enhances learning and assessment. 2. NLP supports the growth of motivation and autonomy. 3. Issues with the usage of NLP	1. NLP promotes active learning. 2. It connects conventional and modern teaching. 3. NLP training is needed.
Hedayat et al., 2020 [20]	NLP in communication training	NLP (mirroring, anchoring) boosted motivation and confidence	1. NLP facilitates communication. 2. NLP reduces learning anxiety. 3. NLP enriches teacher effectiveness.	1. NLP integrates cognitive and emotional learning. 2. It boosts student confidence. 3. NLP training requires advancement.
Sunitha et al., 2021 [10]	NLP in reading comprehension	NLP advanced listening and reading skills in English learners	1. NLP fosters receptive skills. 2. NLP improves motivation. 3. NLP promotes cognitive involvement.	1. NLP as a language-learning framework 2. NLP personalized learning. 3. Teachers require NLP training.
Zeb and Hameed, 2021 [59]	NLP's Milton Model in ESL	NLP patterns (presupposition, embedded commands) strengthened learning	1. NLP builds teacher-student rapport. 2. NLP encourages learners. 3. NLP can organize ESL classes.	1. NLP elevates teaching efficacy. 2. The Milton Model applies to ESL. 3. NLP training should be standardized.
Rayati, 2021 [22]	NLP in Iranian EFL classrooms	NLP training enriched teaching quality and student motivation	1. NLP promotes interaction. 2. NLP increases motivation. 3. There are difficulties with employing NLP.	1. NLP transforms teaching. 2. It reduces student anxiety. 3. Institutions should support NLP
Purnama et al., 2023 [12]	NLP and foreign language teachers	NLP increased engagement and motivation among trained teachers	1. NLP advances classroom communication. 2. Teacher preparedness influences NLP usage. 3. Obstacles to NLP adoption.	1. NLP reinforces pedagogy. 2. Teachers require NLP workshops. 3. Schools should include NLP training.

Table 9. *Cont.*

Study ID	Study Focus	Line-by-Line Coding	Descriptive Themes	Analytical Themes
Almosa, 2023 [60]	NLP and Transactional Analysis (TA) in TEFL	NLP + Transactional Analysis improved speaking, listening, writing, and grammar	1. NLP and TA promote learning. 2. NLP increases motivation. 3. NLP adoption challenges exist.	1. NLP and TA complement each other. 2. It promotes self-learning. 3. Institutional support required.
Zhang et al., 2023 [61]	NLP and critical thinking	NLP fosters emotional intelligence, academic performance, and thinking	1. NLP supports cognitive development. 2. NLP upgrades academic achievement. 3. NLP strengthens EI.	1. NLP combines cognition and behavior. 2. It increases engagement. 3. NLP training is needed.
Rosa et al., 2023 [62]	NLP in public speaking	NLP training promoted confidence, articulation, and emotional control	1. NLP improves verbal skills. 2. NLP reduces speaking anxiety. 3. NLP helps presentations.	1. NLP enriches communication. 2. It alleviates public speaking anxiety. 3. It should be included in university courses.
Rayati, 2024 [63]	NLP and teacher identity	NLP training cultivated teachers' self-awareness and classroom control	1. NLP boosts teacher identity. 2. Elevates classroom dynamics. 3. Obstacles to NLP implementation	1. NLP transforms teaching practices. 2. It increases student engagement. 3. Structured NLP training is necessary.
Zarfsaz and Salamat, 2024 [64]	NLP in writing instruction	NLP training improved writing organization, grammar, and fluency	1. NLP improves writing quality. 2. NLP reduces anxiety. 3. NLP facilitates academic writing.	1. NLP promotes cognitive-linguistic growth. 2. It upgrades writing confidence. 3. It should be in the writing curriculum.
Rahman and Jinu, 2024 [65]	NLP implemented ESL teaching	NLP boosted confidence, communication, and vocabulary	1. NLP increases learner confidence. 2. communication skills. 3. Greater classroom engagement	1. NLP fosters emotional and communicative empowerment. 2. Promotes engagement. 3. Learning outcomes
John et al., 2025 [66]	NLP on students' academic speaking performance	NLP enhances academic speaking proficiency	1. NLP boosts confidence. 2. Reduced presentation anxiety. 3. Developed expressive delivery.	1. NLP supports learner agency, 2. Emotional resilience. 3. Expressive fluency in academic speaking contexts.

4.3. Qualitative Synthesis Results

The studies covered in this review show that NLP plays a crucial role in the educational context, particularly in language acquisition and instruction. The results are presented under five main themes. These are: how NLP enhances learning, helps teachers become more effective, improves learners' language skills, motivates students, and highlights difficulties in using NLP activities in the classroom. These themes provide a thorough understanding of how NLP is utilised in teaching and learning.

The studies examined various NLP techniques, their classroom applications, and their effects on teaching and learning outcomes. **Table 10** summarises studies investigating NLP interventions in ELT. It primarily shows that different NLP techniques are linked to positive results such as increased learner motivation, improved language competence, stronger teacher-student rapport, and enhanced teaching effectiveness.

Table 10. Study Characteristics.

Study ID	Methods	NLP Approach	Findings
Kudliskis, 2014 [55]	Mixed-Methods	Positive reinforcement, reframing	Increased motivation and involvement of students in classroom communication
Lashkarian and Sayadian, 2015 [18]	Quasi-experimental (Pretest-Posttest with Control Group)	Anchoring, mirroring, and sensory-based learning	Enhanced motivation and English competence among EFL learners
Hosseinzadeh and Baradaran, 2015 [56]	Correlational Study	Teacher autonomy and NLP techniques	NLP promoted student rapport and teacher flexibility.

Table 10. *Cont.*

Study ID	Methods	NLP Approach	Findings
Hamid and Marzieh, 2017 [57]	Quasi-Experimental (Pretest-Post-test)	NLP in reflective teaching	Enhanced self-awareness and teaching practices of the teachers
Caballero and Rosado, 2018 [58]	Quasi-experimental (Pretest-Post-test with Control Group)	NLP for pronunciation learning	Substantial advancements in memory and pronunciation accuracy
Keezhatta, 2019 [19]	Qualitative (Thematic Analysis of Interviews)	NLP in ELT classrooms	Increased involvement and efficacy of the teachers in the classroom
Subbu Nisha and Rajasekaran, 2019 [32]	Conceptual and Practical Framework-Based Study	NLP for employability skills	Elevated communication, assertiveness, and problem-solving skills
Keezhatta, 2020 [33]	Mixed-Methods Study (Survey + Thematic Analysis of Interviews)	NLP in Saudi EFL programs	Increased student engagement and motivation using role-play NLP techniques
Hedayat et al., 2020 [20]	Conceptual and Literature Review	NLP in communication training	Students' self-confidence increased, and their speaking anxiety decreased.
Sunitha et al., 2021 [10]	Experimental Study (Pretest-Post-test with Control Group)	NLP in reading comprehension	Elevated cognitive processing and reading comprehension skills
Zeb and Hameed, 2021 [59]	Theoretical and Exploratory Study	Milton Model NLP in ESL	Promoted motivation and communication between the teachers and students
Rayati, 2021 [22]	Qualitative research with thematic analysis	NLP in Iranian EFL classrooms	Reduced student anxiety and improved classroom dynamics
Purnama et al., 2023 [12]	Quantitative (Survey-Based Study)	NLP and foreign language teachers	Enhanced motivation and involvement among the teachers
Almosa, 2023 [60]	Experimental (Pretest-Post-test with Control Group)	NLP and Transactional Analysis (TA) in TEFL	The combination of TA and NLP augmented several language skills
Zhang et al., 2023 [61]	Experimental study (Pretest-Post-test with Control Group)	NLP in critical thinking	NLP strengthens academic achievement and emotional intelligence.
Rosa et al., 2023 [62]	Experimental (Pretest-Post-test)	NLP in public speaking	Increased confidence, articulation, and audience participation
Rayati, 2024 [63]	Sequential Explanatory Mixed Methods Study	NLP and teacher identity	Enhanced efficacy and professional identity of the teachers
Zarfsaz and Salamat, 2024 [64]	Quasi-experimental (Pretest-Post-test with Control Group)	NLP in writing instruction	Writing structure, fluency, and creativity were strengthened with NLP training.
Rahman and Jinu, 2024 [65]	Mixed Methods Quasi-experimental (pre-post-test with control group and Qualitative thematic analysis)	NLP for visual and interactive learning focus	Augmented language proficiency, confidence, and communication skills.
John et al., 2025 [66]	Experimental (pre-post-test with control group)	NLP for academic speaking skills	Boosted confidence, reduced presentation anxiety, and refined expressive speaking.

4.3.1. Sensory-Based Learning, Anchoring and Reframing

By promoting self-awareness, communication, and reducing anxiety, NLP acts as a cognitive and emotive learning technology. Its use in education promotes a more supportive, safe, and effective learning context by helping to increase motivation, confidence, and emotional stability among learners. NLP methods based on sensory modalities encourage students to learn through visual, auditory, and kinesthetic modalities. Such approaches help improve memory retention and language comprehension. Techniques such as visualization and sensory acuity strengthen focus and internalize speaking strategies, thereby improving linguistic confidence [55, 58, 61, 66]. Moreover, anchoring enables students to link positive emotions to specific learning experiences, thereby building confidence and motivation. Reframing enables students to reinterpret challenges in positive ways, reducing anxiety and fostering resilience in communication tasks [20,21,62]. These processes all help to build emotional intelligence and a better classroom atmosphere.

4.3.2. Rapport Building, Communication Flexibility, Reflective Practice, and Professional Development

NLP methods strengthen teacher efficacy through enhanced delivery, rapport, and reflection on practice. Its methods are designed to support an adaptable mode of communication and student-centred teaching. Educators with NLP training were better able to relate to students and accommodate multiple learning styles. This is seen in terms of increased class participation, better discipline, and higher teacher-student relationships [19,56,57]. Additionally, the addition of NLP facilitates teachers' professional development by promoting reflection and adaptive communication skills. It supports learner-centered approaches and inclusive practices, which are particularly advantageous for students with special learning needs, including deafness or hearing impairment (D/HH) [59,63–66].

4.3.3. Enhancing Language Acquisition, Fluency, Paralinguistic, and Communicative Competence

NLP promotes the building blocks of proficiency through cognitive flexibility, learner engagement, and fluency. Using mechanisms such as mirroring, positive reinforcement, and guided visualisation, NLP encourages the uptake of reading, writing, pronunciation, and grammar [32,58,60,64,65]. Interactive activities such as role-plays and anchoring serve to consolidate vocabulary acquisition and speaking confidence. NLP strategies also strengthen paralinguistic elements such as tone, posture, and expression. By enhancing these communicative features, learners develop greater self-confidence and clarity in spoken interactions [66].

4.3.4. Building Confidence, Reducing Anxiety, Promoting Self-Directed and Engaged Learning

NLP contributes to student motivation by fostering positive attitudes, self-confidence, and emotional control. The NLP techniques, more specifically anchoring and reframing, are used to alleviate negative feelings associated with learning anxiety and to promote students' coping with stress, thereby facilitating their active participation in classroom activities [18,20,61,66]—applications of NLP foster self-motivation and a growth mindset. Learners show greater commitment, motivation, persistence, concern, and interest when instruction is adapted to their cognitive or emotional needs [12,19,33,65].

4.3.5. Challenges in NLP Implementation

NLP strategies in education face challenges, including a lack of empirical validation, inadequate teacher training programmes, and resistance to non-traditional methods. Addressing these barriers is crucial to the practical integration of language teaching. The main challenges include the absence of systematic NLP training for teachers, institutional hostility towards innovative teaching strategies, and difficulties in incorporating NLP into the curriculum [22,32,56,60,64]. Most learners require consistent support to adopt a complete NLP approach [60,64]. The qualitative meta-synthesis of 20 studies highlights that NLP significantly influences learning and teaching across various educational contexts. NLP can boost language skills, emotional intelligence, and cognitive engagement, making it a valuable tool for teachers. Institutional support and well-structured teacher training programmes are essential for the implementation of this approach [59,63]. Future research could involve longitudinal studies to examine the long-term effects of NLP in education and address existing issues [10,61,64].

5. Discussion

5.1. Findings and Interpretation

The results of the meta-synthesis are consistent with existing learning theories and resonate particularly well with Vygotsky's socio-cultural theory, which emphasises the importance of social interaction in learning [19,55,59]. Furthermore, the findings align with constructivist theories of learning that call for active, learner-centred contexts [10,58,60]. Their theories all highlighted the significance of interactive and participatory approaches in contributing to successful learning. Furthermore, the outcomes resonate with the principles of cognitive linguistics, which emphasize the interrelation between language, cognition, and experience. From this perspective, NLP techniques such as reframing, anchoring, and modeling can be viewed as tools that activate conceptual metaphors and mental schemas that structure thought and meaning-making in language use. This reinforces the notion that language learning is not merely a mechanical process, but a cognitive activity grounded in perception and conceptualization [67,68].

Moreover, discourse analysis offers an additional theoretical perspective and highlights the role of NLP in language teaching. NLP's attention to patterns of communication, presuppositions, and rapport-building is similar to discourse-analytic descriptions of communicative phenomena such as turn-taking, indexical meaning, and speech acts that are fundamental to co-constructing meaning in interaction [69,70]. NLP can promote interactional competence by identifying those discourse features that characterize the teacher-student communication and can enable a more dialogic learning context.

The findings also correlate with metacognition, emotional intelligence, and engagement achieved through NLP, thereby confirming the Emotional Intelligence Theory [10, 18, 20, 71]. One of the principal contributions of our synthesis is to define NLP as an umbrella term, a multidimensional learning-facilitation strategy that encompasses cognitive, emotional, linguistic, and discourse strategies [22, 32, 56, 63]. This synthesis supports the theoretical bases of both multimodal and cognitive-based learning by demonstrating that NLP is an adaptable approach to diverse learning needs. NLP has the potential to be incorporated into teacher training programs because of its positive impact on teacher-student relationships, motivation, and communicative competence [12,33,57]. It is also observed that institutional limitations caused variations in the application of NLP, indicating that NLP training must be supported by educational policies to ensure effective classroom implementation [20,32,62]. Overall, the study underscores the need for systematic teacher training programs and the promotion of inclusive, cognitively informed pedagogical strategies.

These claims about advances in emotional intelligence, cognitive development, and reductions in anxiety were supported by evidence from the empirical studies. These outcomes were primarily measured using standardized psychological and educational instruments, such as validated anxiety or affective scales, as well as performance-based assessments and structured questionnaires. However, the use of measurement instruments was not fully consistent across studies, as different tools were employed depending on the research context and objectives. As a result, improvements were identified through converging patterns of findings rather than direct statistical comparability. To address this variation, results were synthesized thematically and interpreted cautiously, with explicit acknowledgment of measurement heterogeneity as a limitation.

5.2. Critical Perspectives and Empirical Limitations

NLP is increasingly being integrated into ELT, but it still faces academic criticism. Many researchers have raised concerns about its classification as a pseudoscience, mainly because of the lack of a consistent theoretical framework and the significant variations in its application across different studies. Several studies in this review report positive outcomes, such as high motivation, sustained classroom engagement, and improved language skills. However, the majority of these studies are based on qualitative or descriptive analyses. Such dependence restricts the generalizability and empirical support of our results. The generalisability of the findings is also limited by small sample sizes and interventions specific to settings. This underscores the importance of standard research methodology, longitudinal testing, and comparative studies to rigorously assess the long-term efficacy and validity of NLP in ELT.

5.3. Strengths and Limitations

In the context of NLP in ELT, this review has provided and discussed some strengths and weaknesses. A particular strength of this review is the systematic nature of the selection and synthesis process. Given that inclusion followed the PRISMA flow diagram of study selection, this is a transparent and methodologically sound process. A wide coverage of studies contributes to sound theoretical and practical knowledge with respect to the application of NLP in education settings, languages, and teaching strategies [18,33,58,60,64]. Also, some studies indicate that a thematic synthesis brings depth into the thematic analysis of the review as it enables the examination of the impact of NLP in finding both variation and commonality in context across studies [10, 19, 22, 56, 63]. Limited research exists on long-term learning retention and sustained impact, as many studies have predominantly examined short-term effects. The lack of longitudinal research is identified as one of the constraints discussed above [10,58,61,64]. It is difficult to make direct comparisons among them because of the various methodologies used in the included studies [20, 57, 59, 62]. The discussion also addresses institutional constraints, like limited opportunities for teacher preparation and resistance from traditional educational systems, which have hindered the adoption of NLP [20, 32, 59, 62]. Considering the presented limitations, this study offers valuable insights

into NLP's educational applications, pointing out its merits and emphasizing the need for further study, notably establishing standardized methodologies and investigating long-term outcomes.

6. Conclusion

6.1. Key Findings

The NLP techniques have been demonstrated to be an effective methodology that enriches the intellectual development of learners and strengthens teacher effectiveness. The NLP techniques, rapport building, anchoring, reframing and guided visualization are found to have a significant impact on enhancing classroom interaction, emotional intelligence and the ultimate learning results in the context of language [10,55,58,61]. These strategies help create positive learning environments, reduce affective barriers, and support both cognitive and emotional dimensions of English language learning. The findings reinforce NLP's potential as a pedagogical framework that bridges psychological well-being and linguistic competence in ELT contexts.

6.2. Pedagogical Implications

This study highlights the need for comprehensive NLP teacher training programs which are rigorous, research-based and transferable across variety of educational contexts. These types of programs are designed to create uniformity in the use of NLP practices that can be adapted by teachers for classroom practices. Additionally, by integrating NLP into modern learning technology infrastructures (AI, virtual reality, and adaptive learning system), it is possible to develop hybrid models that personalise the learning process and provide active engagement of the learners. These make up an emerging horizon in teacher education and learner-centred pedagogy.

6.3. Limitations and Ethical Considerations

This review acknowledges several limitations. Many of the included studies had methodological problems such as small sample sizes, short duration of intervention and lack of standardization in NLP practice, which limit the useable outcome. In addition, the context-specific nature of ESL/EFL settings and reliance on self-reported data require cautious interpretation. From a contextual and ethical perspective, NLP should be regarded as a complementary rather than universal pedagogical approach, as its effectiveness varies across linguistic, cultural, and institutional contexts and depends on teacher preparedness. Uncritical adoption of NLP-based interventions may also raise ethical concerns related to learner autonomy, authenticity, and responsible data use.

6.4. Future Directions

Based on these ethical and sociocultural reflections, future research should undertake rigorous longitudinal cross-cultural studies investigating the long-term effects of NLP in ELT. Further studies should examine the cultural adaptability of NLP frameworks and their scalability across different pedagogical systems. Interdisciplinary work that combines NLP and emerging technologies, cognitive science theory, and affective learning models could provide deeper understandings of how students' motivation, engagement, and emotion regulation can be better understood. Researchers are advised to maintain methodological transparency and exercise caution in interpreting results to prevent overstatement of effectiveness. Collectively, these directions will support the responsible evolution of NLP as an evidence-based, context-sensitive, and pedagogically aligned tool for advancing English language education.

Author Contributions

N.P.: Conceptualization, Methodology, Investigation, Writing—Original draft preparation. G.S.N.S.: Supervision, Validation, Visualization, Reviewing and Editing, Resources. Both authors have read and agreed to the published version of the manuscript.

Funding

This work received no external funding.

Institutional Review Board Statement

Not applicable.

Informed Consent Statement

Not applicable.

Data Availability Statement

The data for this systematic review were obtained from publicly accessible research articles available through academic databases, including Scopus, Web of Science, ScienceDirect, Cochrane Library, PubMed, Psyndex, and ERIC. The relevant articles are listed in the references section of this paper, and the original data can be accessed directly through these databases. No proprietary or restricted datasets were utilized, and all data are publicly available.

Acknowledgments

We are grateful for the invaluable resources provided by Scopus, Web of Science, Science Direct, Cochrane Library, PubMed, Psyndex, and ERIC for publications on NLP in ELT and learning.

Conflicts of Interest

The authors declare no conflict of interest.

AI Use Statement

Copilot 365 was only used by the writers to verify grammar, improve sentence structure, and make the English text in this paper easier to read. All ideas, data, analysis, and conclusions given herein are entirely the responsibility of the writers. The writers carefully examined and oversaw the application of AI.

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