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Original Research

Teacher Written Corrective Feedback and EFL Learners' Revision Behavior: A Systematic Review of Empirical Evidence

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Abstract

This systematic review examines empirical studies on teacher-provided Written Corrective Feedback (WCF) and its influence on the revision behaviors of English as a Foreign Language learners, focusing on research published between 2010 and 2025. The review explores three interconnected aspects: how different types of WCF affect revisions, the role of learner perceptions, and methodological moves in the field. After a careful multi-stage screening process, studies that measured observable revision outcomes were analyzed qualitatively. Overall, findings suggest that WCF consistently supports learners in revising their texts, with explicit strategies especially Direct Corrective Feedback and Metalinguistic Explanations producing the most immediate improvements when revisions are required. Learner proficiency and attitudes further shape the effectiveness of feedback, with positive perceptions and greater linguistic readiness fostering deeper engagement and more thorough revisions. Conversely, implicit feedback often presents difficulties for lower-proficiency learners. Methodological review highlights common limitations, including short intervention periods, controlled settings, and limited longitudinal evidence. Emerging research emphasizes the potential of technology, such as automated writing evaluation and keystroke logging, to capture the dynamic nature of revisions. The review underscores the importance of context-sensitive WCF practices and calls for studies that examine feedback effects in ecologically valid, long-term classroom settings.

Keywords: Corrective Feedback; EFL Learners; Revision Behavior; Systematic Review.

1. Introduction

Teacher Written Corrective Feedback (TWCF) is widely recognized as a critical tool for supporting the development of writing skills in English as a Second or Foreign Language (ESL/EFL) learners (Bitchener & Ferris, 2012; Hyland & Hyland, 2006; Yu & Yang, 2021). In the present review, TWCF is conceptualized as an instructional feedback strategy employed by teachers to facilitate learners' writing development and revision processes. Specific forms of TWCF, including Direct Corrective Feedback, Indirect Corrective Feedback, and Metalinguistic Explanation, are treated as feedback types or techniques through which this broader instructional strategy is operationalized. While debates over its effectiveness have persisted, a growing body of research confirms that thoughtful WCF can play a central role in fostering learners' writing proficiency (Ferris, 2010; Ghane et al., 2024; Lee, 2019).

Effective WCF not only addresses grammatical and lexical errors but also helps learners internalize target language norms, gradually building their writing competence (Lee, 2013; Subon & Ali, 2022; Bitchener & Knoch, 2010). Contemporary research increasingly situates WCF at the intersection of theory and practice, highlighting how teachers'

beliefs and instructional decisions influence the impact of feedback (Bitchener & Storch, 2016; Mao et al., 2024). Ultimately, the goal of WCF is to guide students toward greater linguistic accuracy while promoting self-directed improvement (Hattie & Timperley, 2007; Yu & Yang, 2021).

WCF can take many forms, from direct corrections and metalinguistic explanations to reformulations and indirect cues (Ellis, 2009; Zhang et al., 2021; Lee, 2019). Its effectiveness often hinges on learners' responses, commonly examined through their revision behavior, which refers to the ways students engage with feedback, modify their drafts, and integrate suggested changes (Han & Hyland, 2015; Subon & Ali, 2022; Zheng & Yu, 2018).

Over the past decade, empirical studies consistently demonstrate that corrective feedback can enhance both immediate and longer-term writing accuracy (Bitchener & Knoch, 2010; Diab, 2015; Valizadeh, 2020). Controlled pretest–posttest designs often report measurable gains for learners who receive WCF compared with those who do not (Ekanayaka & Ellis, 2020; Ghane et al., 2024; Shintani et al., 2014). Both direct and indirect WCF approaches have shown potential for fostering improvements that persist beyond the initial revision task, highlighting their role in sustained learning (Van Beuningen et al., 2012).

Despite these positive findings, questions remain regarding which types of WCF are most effective in the long term. Results vary across contexts, linguistic features, and learner proficiency levels (Guo, 2023; Valizadeh, 2022). Consequently, research attention has shifted toward understanding how WCF works and which factors moderate its effects, including task complexity, context, and learner characteristics (Bitchener & Storch, 2016; Kao et al., 2025; Li, 2010).

Nevertheless, significant gaps persist. Many studies rely on controlled experimental designs rather than naturalistic classroom settings, limiting ecological validity. Short-term interventions dominate the literature, leaving questions about long-term effects largely unanswered (Lee, 2020; Mao et al., 2024; Storch, 2018). Addressing these gaps is essential to better connect specific feedback features with observable, meaningful improvements in student writing.

Furthermore, although learner-related factors are widely recognized as shaping how students respond to feedback, relatively little longitudinal research has examined how these factors evolve over time and interact with classroom contexts during the revision process. Variables such as language proficiency, motivation, and enjoyment are unlikely to influence revision behavior in isolation; rather, their effects may shift as learners gain experience, encounter different instructional conditions, and develop greater confidence in writing (Han & Hyland, 2015; Yang et al., 2023; Zheng & Yu, 2018). As a result, our understanding of how individual and contextual factors work together to influence revision remains incomplete.

Another limitation concerns the range of outcomes that have been investigated. Much of the WCF literature has focused on improvements in linguistic accuracy, providing valuable evidence of feedback effectiveness. However, considerably less attention has been paid to other aspects of writing development, including syntactic complexity, text quality, and the use of self-regulated learning strategies during revision. Where such issues have been examined, findings have often been mixed or inconclusive, suggesting the need for further research that takes a broader view of writing development (Thi & Nikolov, 2023; Valizadeh, 2022; Yang et al., 2023).

Although previous research has repeatedly shown that explicit forms of WCF can improve learners' writing accuracy, much less is known about why such feedback works better in certain contexts and for certain learners. Existing studies differ considerably in their definitions of revision behavior, their methodological designs, and the learner-related variables they examine. Consequently, the field has reached a point where the more important question is no longer whether written corrective feedback is effective, but rather how feedback interacts with contextual and individual factors during the revision process.

Against this backdrop, the present review seeks to synthesize empirical research published between 2010 and 2025 on teacher Written Corrective Feedback and EFL learners' revision behavior. More specifically, the review addresses the following research questions:

RQ1. Which types of TWCF have been found to be most effective in improving EFL learners' revision behavior across the studies included in this review?

RQ2. What learner-related and contextual factors influence the effectiveness of TWCF on revision behavior across the reviewed empirical studies?

RQ3. What methodological patterns, strengths, and gaps can be identified in empirical studies investigating TWCF and revision behavior across the reviewed studies?

2. Methods

This study adopts a qualitative systematic review methodology guided by the PRISMA reporting framework. Although PRISMA was originally developed to improve the transparency of systematic reviews and meta-analyses, the present study does not employ meta-analytic statistical procedures. Instead, it synthesizes empirical findings through a qualitative and thematic analysis of studies investigating teacher-written corrective feedback and EFL learners' revision behavior published between 2010 and 2025.

2.1. Search Strategy

Previous systematic reviews in the fields of second language writing and SLA have emphasized the importance of conducting comprehensive database searches to capture the breadth of relevant research (Mao et al., 2024; Yu & Yang, 2021). Following these recommendations, the present review drew on major academic databases that regularly index applied linguistics and language education research, including resources comparable to Web of Science, Scopus, and Linguistics and Language Behavior Abstracts (LLBA) (Li, 2010; Mamad & Vigh, 2024; Mao et al., 2024).

The search terms were selected to reflect the central concepts addressed in this review. To identify studies on feedback practices, keywords such as "written corrective feedback," "corrective feedback," "error correction," "WCF," "direct feedback," "indirect feedback," and "metalinguistic feedback" were used (Ellis, 2009; Zhang et al., 2021). These were combined with terms referring to the target population and the writing process, including "EFL," "L2," "second language writing," and "revision" (Lee, 2013; Yu & Yang, 2021). Boolean operators (AND and OR) were employed to combine search terms and improve the precision of the search while ensuring adequate coverage of relevant studies, in line with common practice in systematic review research (Mamad & Vigh, 2024; Yu & Yang, 2021).

2.2. Inclusion and Exclusion Criteria

To ensure that only studies directly relevant to the research questions were included, a set of inclusion and exclusion criteria was established before the screening process began. These criteria are summarized in Table 1. Their development was informed by methodological guidance from previous systematic reviews in the field and was intended to ensure both transparency and consistency throughout the selection process (Mamad & Vigh, 2024; Yu & Yang, 2021). Each study was evaluated against these criteria before being considered for inclusion in the final analysis.

Table 1. *Inclusion and Exclusion Criteria*

Category	Inclusion Criteria (Justification Citation)	Exclusion Criteria (Justification Citation)
Topic Focus	Must investigate TWCF (Bitchener & Ferris, 2012; Yu & Yang, 2021)	Studies focusing solely on peer or automated feedback without specific TWCF findings (Mao, Lee, & Li, 2024; Mamad & Vigh, 2024)
Construct	Must include analysis of learner responses or revision behavior (Han & Hyland, 2015; Subon & Ali, 2022)	Studies focusing exclusively on WCF outcomes (accuracy or fluency) without revision behavior analysis (Truscott, 2007; Polio et al., 1998)
Population	Must include EFL/ESL learners (Yu & Yang, 2021; Chen et al., 2016)	Studies exclusively involving L1 or L3 writing contexts (Mamad & Vigh, 2024)
Methodology	Must be empirical studies employing quantitative, qualitative, or mixed-methods methodologies (Yu & Yang, 2021; Mao et al., 2024)	Unpublished literature (e.g., dissertations, proceedings) to ensure quality control (Mao et al., 2024; Li, 2010)
Date Range	Articles published between 2010 and 2025	Articles published outside the specified date range
Language	Must be published in English (Mamad & Vigh, 2024)	Not applicable

2.3. Screening Process

The selection of studies followed a carefully organized, stepwise procedure, encompassing three main stages: Identification, Screening, and Eligibility assessment (Mamad & Vigh, 2024). This approach, widely used in systematic reviews, ensures transparency in reporting why studies were included or excluded (Yu & Yang, 2021).

During the Identification phase, all records retrieved from the database searches were gathered, and duplicate entries were removed following systematic protocols (Mamad & Vigh, 2024). In the Screening phase, titles and abstracts were examined to determine which studies met the basic inclusion criteria. Articles lacking empirical data or focusing on feedback delivered by sources other than teachers such as peers or automated systems were excluded at this stage (Mamad & Vigh, 2024; Yu & Yang, 2021).

Studies that passed the initial screen advanced to the Eligibility phase, where the full texts were carefully reviewed. Each study was evaluated against all inclusion and exclusion criteria, with particular attention to whether learners' revision behavior was directly observable and whether the feedback came specifically

from teachers (Mao et al., 2024; Yu & Yang, 2021). Articles were excluded if the experimental design was excessively manipulated or if the study did not provide sufficient qualitative or quantitative detail about how learners responded to feedback.

Following this stepwise process, a final set of studies was selected for synthesis (Mamad & Vigh, 2024). By systematically narrowing the pool of potential studies, this procedure adheres to best practices in high-quality systematic reviews on written corrective feedback and ensures that the resulting analysis is grounded in reliable, relevant evidence (see Mamad & Vigh, 2024, Figure 1).

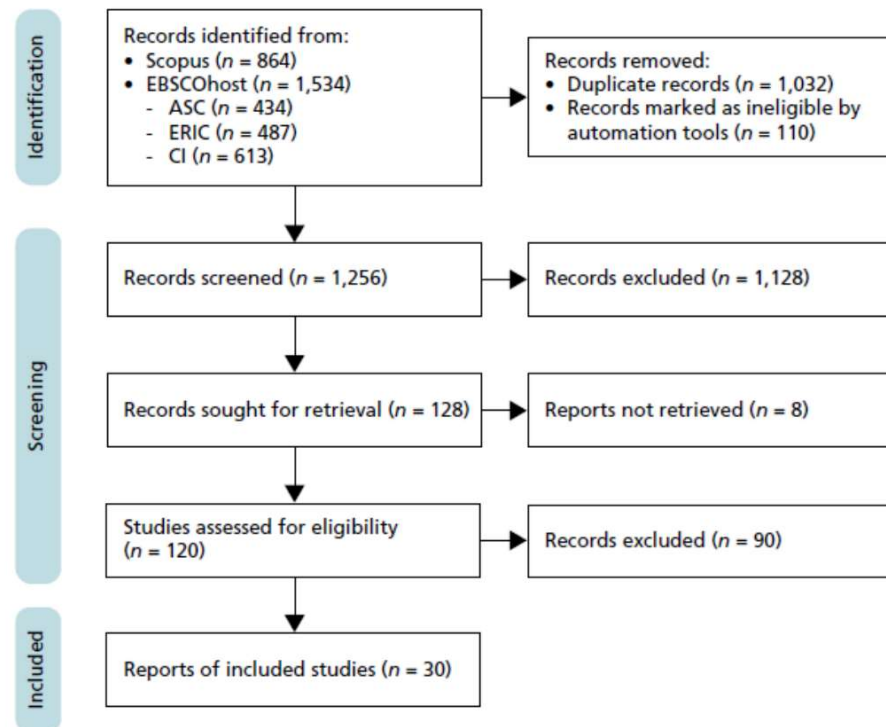


Figure 1. Summary of Literature Search and Review Process

2.4. Data Extraction (Coding)

The data extraction process was carried out with careful attention to capturing key information from each of the included studies, resulting in a comprehensive dataset that could support a meaningful thematic analysis. Attention was focused specifically on methodological details and empirical outcomes

that were directly relevant to the types of teacher-written corrective feedback and the learners' observable revision behaviors (Han & Hyland, 2015; Valizadeh, 2020).

To maintain consistency and transparency, a structured coding framework was applied to document each study's characteristics systematically. This framework helped ensure that the extraction process was both rigorous and replicable, while also allowing the researchers to identify patterns across studies. The main elements of the framework are summarized in Table 2, which presents detailed, citation-supported information on the methodological approaches and empirical findings of the included research.

Table 2. *Main Elements of the Framework*

Authors (Year)	Country	Participants	WCF Type	Revision Behavior Measure	Instruments	Major Findings	Research Design	Data Analysis Procedure
Valizadeh (2020)	Turkey	90 EFL upper- intermediat e students	Comprehensi ve DCF, Metalinguisti c Explanation (ME)	Syntactic Accuracy (Errors per 100 words)	OPT, IELTS Writing Task 2	Both improved accuracy; explicit forms generally more effective for syntactic accuracy (Valizadeh, 2020).	Quasi- experimental	Pretest-posttest
Valizadeh (2022)	Turkey	EFL upper- intermediat e students	Comprehensi ve DCF, ME	Syntactic Complexity (C/S, C/T, CP/T)	OPT, IELTS Writing Task 2, L2SCA	DCF significantly outperformed ME/NF in C/T and C/S; implied WCF did not lead to simplified writing (Valizadeh, 2022).	Quasi- experimental	MANOVA
Shintani et al. (2014)	Japan	171 Japanese EFL pre- intermediat e university students	Direct Corrective Feedback (DCF), ME (Focused)	Accuracy in Hypothetical Conditional and Articles (TLU formula), Revision uptake	Dictogloss tasks, Interviews	DCF + Revision was most effective for hypothetical conditional accuracy gains; ME was more effective for explicit knowledge than DCF (Shintani et al., 2014).	Quasi- experimental	ANOVA, Interviews

Ekanayaka & Ellis (2020)	Sri Lanka	91 EFL university students	Direct WCF (+/- Revision) (Semi-focused)	Accuracy (finite verbs), Fluency (word count)	Problem-solution tasks, Exit Questionnaire	Revision enhanced the effect of WCF on accuracy gains; WCF did not negatively impact fluency (Ekanayaka & Ellis, 2020).	Quasi-experimental	ANOVA, Exit Questionnaire
Han & Hyland (2015)	China (HK)	4 Chinese EFL non-English major university students	Selective, Indirect Teacher WCF	Affective, Behavioral, Cognitive Engagement (Revision operations)	Drafts, Interviews, Verbal Reports, Conferences	Engagement varied highly across individuals, mediated by beliefs, goals, and contextual interaction; engagement is dynamic and multifaceted (Han & Hyland, 2015).	Qualitative	Multiple Case Study
Zheng & Yu (2018)	China	12 Chinese LP EFL university students	Focused/Unfocused Direct/Indirect WCF	Affective, Behavioral, Cognitive Engagement (Revision modifications)	Drafts, Oral Reports, Interviews	Positive affective engagement contrasted with limited cognitive/behavioral engagement; LP hindered understanding/revision beyond explicit WCF (Zheng & Yu, 2018).	Qualitative	Case Study, Thematic Analysis
Diab (2015)	Lebanon	57 ESL university students	Direct + ME, ME only (Focused)	Reduction of Pronoun Agreement (Pr. Agr.) and Wrong Words (W.W.) errors	Essays, Interviews	Direct+ME superior for Pr. Agr. (Immediate Post-test) and W.W. (Delayed Post-test); error type strongly affected accuracy uptake (Diab, 2015).	Quasi-experimental	ANOVA, Interviews
Ghane et al. (2024)	Iran	52 Iranian EFL male students	Direct Unfocused WCF	Writing Skill, Self-efficacy, Anxiety (WSEQ, SLWAI)	OPT, Writing Tasks, Questionnaires	WCF significantly improved writing skill, self-efficacy, and reduced anxiety; unfocused WCF was highly effective (Ghane et al., 2024).	Quasi-experimental	Paired-samples t-test

Subon & Ali (2022)	Malaysia	50 ESL upper-intermediate university students	Implicit WCF (Error Indication)	Writing Skills (Essay scores, self-correction)	Essay Tests, Structured Interview	Implicit WCF effective for improving writing skills; positive perceptions towards implicit WCF/self-correction (Subon & Ali, 2022).	Mixed-methods	Single Group Pre/Post
Yang et al., (2023)	China	9 EFL university students	SRL-based feedback (Process/Self-Regulation focus)	Self-Regulated Writing Strategies (Metacognitive, Cognitive, Motivational, Social-Behavioral)	Interviews, Written Artefacts (Error logs, goals)	Process-SR feedback enhanced strategic planning, monitoring, motivation, and feedback inquiry; shifted focus to process (Yang, Zhang, & Dixon, 2023).	Qualitative	SRL framework
Chen et al., (2016)	China	64 Chinese EFL university students	WCF Types/Scope/ Priority (Perceptions/ Preferences)	Perceptions influencing revision commitment (Self-reported)	Questionnaires (Likert/Open-ended)	Students prefer comprehensive WCF and explicit/direct strategies for improving overall communication quality (Chen, Nassaji, & Liu, 2016).	Mixed-methods	Survey
Endley & Karim (2022)	UAE	63 Arabic EFL intermediate students	Focused DCF, Focused DF+ME	Accuracy on Treated (Articles) and Untreated (Remaining) Articles	GJT, ECT, Writing Tasks	No clear effect for WCF on implicit/explicit knowledge; replication found moderate improvement on treated articles but negative impact on untreated articles (Endley & Karim, 2022).	Quasi-experimental	Mixed-model ANOVA

Kao et al. (2025)	Taiwan	57 L1-Chinese L2 student writers	Unfocused Direct Corrective Feedback	Accuracy on Articles, Prepositions, Verb Tenses	Communicative Writing Tasks, ANOVA	Unfocused CF effectively improved Article accuracy (long-term); minimal effect on Prepositions and Verb Tenses (Kao et al., 2025).	Quasi-experimental	ANOVA
Cánovas Guirao et al. (2015)	Spain	20 young EFL learners (Grade 5)	Models (Holistic, implicit feedback)	Noticing of language features, changes/improvements in revised texts	Dialogue analysis, Written texts	Models encouraged noticing of lexis/chunks over grammar; task repetition influenced performance; proficiency mediated noticing/uptake (Cánovas Guirao et al., 2015).	Quasi-experimental	Small Sample
Wirantaka (2022)	Indonesia	4 EFL university students (Supervisors)	WCF Practices (Criteria for Effective WCF)	Revision success based on perceived WCF criterion	In-depth Interviews	Effective WCF must be understandable, focused, and direct, ensuring students gain valuable feedback to improve writing (Wirantaka, 2022).	Qualitative, Descriptive	Thematic Analysis
Yang & Zhang (2010)	China	EFL students (Not specified)	Reformulations, Model Texts	Noticing of language problems, improvements in writing performance	Reformulation, Model Text tasks	Reformulation focused noticing on linguistic inadequacies (sentence-level problems); Models provided alternative expressions/ideas (Yang & Zhang, 2010).	Experimental, quantitative and qualitative	Small-scale classroom

3. Results

3.1. Findings for RQ1: WCF Types and Their Impact on Revision Behavior

Across the studies reviewed, teacher-written corrective feedback (WCF) reliably prompted learners to revise their writing, leading to measurable improvements in grammatical accuracy in subsequent drafts (Diab, 2015; Ekanayaka & Ellis, 2020; Subon & Ali, 2022; Valizadeh, 2020). These effects were especially pronounced when learners were explicitly asked to revise their original texts after receiving feedback (Ekanayaka & Ellis, 2020; Shintani et al., 2014). For instance, one quasi-experimental study found that combining direct WCF with a mandatory rewrite task produced the largest gains in accuracy for finite verb constructions, highlighting the central role of revision as a mechanism for consolidating language knowledge (Ekanayaka & Ellis, 2020). This body of research challenges earlier claims that grammatical correction might hinder writing development, demonstrating that structured feedback can be both effective and supportive of learning (Ghane et al., 2024; Valizadeh, 2020).

The degree of explicitness in feedback emerges as a critical factor influencing its impact. Feedback ranges from indirect indications of errors to direct corrections and metalinguistic explanations (Ellis, 2009; Zhang et al., 2021). Learners consistently show a preference for explicit forms, such as Direct Corrective Feedback (DCF) and Metalinguistic Explanation (ME), which tend to produce more accurate immediate revisions (Diab, 2015; Zhang et al., 2021). For example, DCF combined with ME has been particularly effective for correcting pronoun agreement and wrong-word errors, suggesting that providing both the correct form and a brief rule explanation helps learners revise more accurately (Diab, 2015).

Interestingly, the reviewed studies suggest that the effectiveness of explicit feedback cannot be separated from contextual variables such as learner proficiency, revision requirements, and instructional design. Explicit feedback appears to be most advantageous when learners are required to revise immediately and when linguistic targets are relatively specific. This suggests that its effectiveness is conditional rather than universal.

Qualitative findings provide additional nuance. Indirect feedback—such as simply underlining errors or providing minimal codes—can challenge lower-proficiency learners by demanding high cognitive engagement for accurate self-correction (Zheng & Yu, 2018; Han & Hyland, 2015). Yet, some studies indicate that even implicit WCF can be positively received by learners in certain contexts, such as ESL undergraduates, who reported that simple error indicators helped them focus on broader aspects of writing (Subon & Ali, 2022). These observations suggest that the relative effectiveness of explicit versus implicit feedback may depend on learners' developmental stage and instructional context.

The literature also examines the comparative impact of Focused WCF (FWCF) and Unfocused WCF (UWCF). FWCF narrows attention to specific grammatical features, reducing cognitive load and allowing learners to concentrate on mastering targeted structures. Its benefits have been particularly evident in studies addressing article usage, where focused correction led to noticeable accuracy gains (Endley & Karim, 2022; Shintani et al., 2014). In contrast, UWCF, which mirrors typical classroom practice by addressing multiple error types simultaneously, has shown considerable potential for durable gains, particularly in long-term interventions (Van Beuningen et al., 2012; Ghane et al., 2024). For example, an 18-week study using unfocused direct WCF produced significant improvements in article accuracy, although its effects on more complex structures, like prepositions and verb tenses, were less pronounced (Kao et al., 2025).

Beyond accuracy, comprehensive DCF was found to enhance syntactic complexity, measured by clauses per T-unit (C/T) and clauses per sentence (C/S), suggesting that broad feedback does not necessarily simplify learners' output but can support more sophisticated structural revisions (Valizadeh, 2022). Innovative approaches, such as Models and Reformulation, also influence revision behavior. Reformulation—rewriting learners' sentences in native-like form—promotes noticing by allowing students to compare their own work with a more proficient version (Yang & Zhang, 2010; Milla & García Mayo, 2024). Model texts, meanwhile, offer native-like examples at the discourse level, guiding learners in lexical choice, complex structures, and content organization, which encourages global revision strategies (Yang & Zhang, 2010). Studies with younger learners suggest that model texts tend to direct attention to vocabulary and content rather than grammar, shaping distinct revision orientations (Cánovas Guirao et al., 2015; Milla & García Mayo, 2024).

Finally, WCF approaches grounded in self-regulated learning (SRL) can substantially enhance learners' strategic planning, goal-setting, and revision strategy use. By emphasizing process and metacognition, SRL-based feedback

transforms correction from a static evaluation into an active mechanism for continuous, self-directed improvement (Yang et al., 2023).

An important observation across these studies is that there is no universally superior type of WCF. Rather, the effectiveness of feedback appears to be highly context-dependent. Differences in learner proficiency, target linguistic structures, instructional settings, and revision requirements may explain the inconsistent findings across studies. Consequently, the longstanding debate over which feedback type is most effective may be less productive than identifying the conditions under which particular feedback strategies are pedagogically appropriate.

3.2. Findings for RQ2: Learner Perceptions and Revision Behavior

Learners' perceptions and emotional responses play a crucial role in shaping how WCF influences revision. Across multiple studies, students generally express positive attitudes toward teacher feedback, recognizing it as essential for improving writing skills and increasing linguistic awareness (Chen et al., 2016; Zheng & Yu, 2018). Positive feelings such as pride, confidence, and satisfaction are strongly linked to thorough revision and higher accuracy in subsequent drafts (Salami & Khadawardi, 2022; Han & Hyland, 2015). Empirical evidence also shows that WCF can enhance writing self-efficacy and reduce anxiety, further motivating learners to engage in sustained revision (Ghane et al., 2024).

Conversely, negative emotions such as frustration or discouragement can inhibit engagement. When feedback is unclear, overwhelming, or repeatedly highlights errors without guidance, learners may struggle to apply it effectively or even abandon revision attempts (Han & Hyland, 2015; Zheng & Yu, 2018). These findings underscore the importance of delivering feedback in ways that support constructive emotional engagement.

Students also express clear preferences regarding the form and scope of feedback, which in turn affects the effort they invest in revision. Highly explicit feedback, particularly direct correction and metalinguistic explanations, is preferred because it reduces ambiguity and provides actionable guidance (Chen et al., 2016; Zhang et al., 2021). Such feedback is often perceived as the quickest path to producing a polished draft. By contrast, less explicit cues, such as underlining or coded marks, are challenging for lower-proficiency learners who may lack the metalinguistic resources to interpret them, resulting in superficial or incomplete revisions (Zheng & Yu, 2018; Han & Hyland, 2015). Comprehensive feedback that addresses all errors is also highly valued, as learners see it as essential for overall development and as an indication of teacher investment in their progress (Chen et al., 2016; Salami & Khadawardi, 2022).

Learner proficiency mediates how feedback is processed and enacted. Lower-proficiency learners often engage at a surface level, noticing errors without fully understanding the rules necessary to correct them, which limits meaningful revision (Han & Hyland, 2015; Zheng & Yu, 2018). In contrast, higher-proficiency learners are better able to interpret less explicit feedback, enabling deeper cognitive processing and more accurate self-correction (Zhang et al., 2021). These findings emphasize that the explicitness of feedback should align with learners' developmental readiness to maximize cognitive engagement and facilitate substantive revision.

Perceptions of innovative feedback approaches also influence revision behavior. SRL-based feedback, which targets learners' metacognitive and self-regulatory processes, encourages active engagement in goal-setting, strategic planning, and monitoring recurring errors, transforming feedback into a dynamic tool for self-directed improvement (Yang et al., 2023). In technology-mediated contexts, learners generally respond positively to Automated Written Corrective Feedback (AWCF), appreciating its immediacy, accessibility, and perceived objectivity, which promotes rapid, on-the-spot revisions (Rahimi et al., 2025). Yet, students also recognize AWCF's limitations, particularly in handling complex syntactic structures or providing higher-order feedback on content and organization, which constrains its utility in more advanced revision tasks (Rahimi et al., 2025).

3.3. Findings for RQ3: Methodological Trends and Gaps

The research landscape exploring WCF and revision is methodologically rich but remains characterized by a persistent tension between the demands of experimental control and the need for ecological validity (Mao et al., 2024). Most studies rely on quasi-experimental designs, often adopting pretest–posttest or delayed post-test frameworks. Many include carefully constructed control conditions such as groups receiving only content-focused comments or peer feedback to isolate the specific effects of WCF on learners' revisions (Valizadeh, 2020; Ekanayaka & Ellis, 2020; Diab, 2015). Complementing these quantitative approaches, qualitative case studies with small or focused participant samples

are widely used to capture dimensions of learner engagement cognitive, affective, and behavioral that tightly controlled experiments sometimes overlook (Han & Hyland, 2015; Yang et al., 2023; Zheng & Yu, 2018). This geographical concentration may reflect the pedagogical importance of teacher-written corrective feedback in contexts where classroom instruction constitutes a major source of English language exposure (Mao et al., 2024; Yu & Yang, 2021; Zhang et al., 2021).

High-quality investigation into WCF relies on systematic triangulation of multiple data sources, capturing both the processes learners engage in and the quality of their revised texts (Cheng et al., 2023; Yu & Yang, 2021). Central to this methodological approach is detailed analysis of original and revised drafts, which enables researchers to quantify changes in accuracy or linguistic production, often using obligatory-context analyses or error ratios (Diab, 2015; Ekanayaka & Ellis, 2020). These quantitative measures are regularly complemented by qualitative methods, including semi-structured interviews, immediate oral reports, and retrospective verbal protocols, which are designed to shed light on learners' cognitive strategies, planning, and affective responses during revision (Han & Hyland, 2015; Zheng & Yu, 2018). Additional methodological depth comes from specialized tools, such as the L2 Syntactic Complexity Analyzer (L2SCA) for measuring linguistic sophistication (Valizadeh, 2022; Thi & Nikolov, 2023), alongside validated psychological questionnaires that capture relevant non-linguistic variables (Ghane et al., 2024).

Despite these methodological strengths, several persistent challenges remain. A major limitation is the weak ecological validity of many experimental studies. Short, standardized interventions, commonly employed in the literature, often fail to reflect the fluid, iterative nature of authentic classroom writing development (Lee, 2020; Mao et al., 2024; Storch, 2018). Reliance on small, non-representative samples in qualitative studies also limits the generalizability of otherwise rich insights into learner engagement and revision behaviors (Zheng & Yu, 2018; Han & Hyland, 2015; Kao et al., 2025). Short intervention durations exacerbate this issue: many studies do not track learners across multiple feedback–revision cycles, making it difficult to assess whether observed gains are sustained over time (Endley & Karim, 2022; Yu & Yang, 2021).

Measurement reliability presents another challenge. Teachers frequently provide mixed feedback combining linguistic and content-based comments which complicates efforts to isolate the effects of a single WCF type, sometimes resulting in conflated outcome patterns (Cheng & Zhang, 2021; Han & Hyland, 2015). Further, there is no widely accepted standard for coding complex constructs such as revision quality or the application of metalinguistic principles. Coding these constructs often requires iterative, labor-intensive processes, which can introduce inconsistencies and further limit comparability across studies (Cheng et al., 2023; Valizadeh, 2022).

Looking ahead, future research must embrace complex, longitudinal designs that span multiple semesters or adopt multi-factorial approaches capable of accounting for several mediating variables simultaneously (Yang et al. 2023; Ghane et al., 2024). Advanced technological tools, including keystroke-logging software (e.g., Inputlog) and Automated Writing Evaluation (AWE) platforms, offer promising solutions for capturing dynamic, micro-level cognitive processes in real time, moving beyond reliance on retrospective self-reports (Cheng et al., 2023; Tian et al., 2023). The development and refinement of automated tracking methods are crucial for handling the vast amounts of feedback and revision data generated in authentic classroom contexts, providing scalable, objective analyses that complement and enhance traditional human coding efforts (Cheng et al., 2023).

A noteworthy concern emerging from the reviewed literature is that revision success is frequently equated with language acquisition. Immediate improvements in revised drafts do not necessarily indicate long-term internalization of linguistic knowledge. Consequently, the field may currently overestimate the pedagogical impact of WCF when revision accuracy is treated as the sole outcome measure. Future research should distinguish more carefully between successful revision and durable language development.

4. Discussion

4.1. Interpretation of Findings for RQ1: WCF Types and Revision

Research on WCF and revision is methodologically diverse, reflecting an ongoing tension between the need for experimental control and the desire for authentic classroom relevance (Mao et al., 2024). Many studies adopt quasi-experimental designs, typically using pretest–posttest or delayed post-test frameworks. These often include specialized control groups for example, learners receiving only content-focused feedback or peer comments to isolate the effects of

WCF on revision outcomes (Valizadeh, 2020; Ekanayaka & Ellis, 2020; Diab, 2015). Complementing these quantitative approaches, qualitative case studies with small samples or focal participants capture learners' affective, cognitive, and behavioral engagement dimensions that tightly controlled experiments sometimes overlook (Han & Hyland, 2015; Yang et al., 2023; Zheng & Yu, 2018).

This geographical concentration may reflect the pedagogical importance of teacher-written corrective feedback in EFL contexts where classroom instruction continues to provide structured and pedagogically mediated language input (Mao et al., 2024; Yu & Yang, 2021; Zhang et al., 2021). At the same time, contemporary language learners particularly members of Generation Z are increasingly exposed to English beyond the classroom through digital media, social networking platforms, online communities, and global cultural products. Consequently, the relationship between teacher-written corrective feedback and learners' language development should be understood within a broader ecology of English language exposure rather than being attributed solely to formal classroom instruction. Across methodologies, a common strength is the integration of multiple instruments to capture both the processes learners use and the quality of their revised products (Cheng et al., 2023; Yu & Yang, 2021). Textual analysis of original and revised drafts allows researchers to quantify changes in accuracy, while complementary qualitative tools such as semi-structured interviews, immediate oral reports, and retrospective verbal protocols reveal cognitive strategies, planning, and affective responses during revision (Han & Hyland, 2015; Zheng & Yu, 2018). Advanced tools like the L2 Syntactic Complexity Analyzer (L2SCA) and validated psychological questionnaires further enhance the depth and precision of analysis (Valizadeh, 2022; Thi & Nikolov, 2023; Ghane et al., 2024).

Despite these advances, challenges remain. Short, standardized interventions often fail to reflect the iterative, dynamic nature of real classroom writing development, limiting ecological validity (Lee, 2020; Mao et al., 2024; Storch, 2018). Small, non-representative samples in qualitative studies constrain generalizability (Zheng & Yu, 2018; Han & Hyland, 2015; Kao et al., 2025), while brief interventions rarely track multiple feedback–revision cycles, leaving the durability of observed gains uncertain (Yu & Yang, 2021; Endley & Karim, 2022). Measurement reliability is another concern: isolating the effect of a single WCF type is complicated when teachers provide mixed feedback, and coding complex constructs like revision quality often requires iterative, labor-intensive procedures (Cheng et al., 2023; Valizadeh, 2022).

Looking forward, research should embrace complex longitudinal designs and multi-factorial approaches that account for multiple mediating variables simultaneously (Ghane et al., 2024; Yang et al., 2023). Advanced technologies such as keystroke logging (Inputlog) and Automated Writing Evaluation (AWE) systems offer powerful means to capture micro-level, real-time cognitive processes during revision, reducing reliance on retrospective self-reports and enabling scalable, objective analyses (Cheng et al., 2023; Tian et al., 2023).

4.2. Interpretation of Findings for RQ1: WCF Types and Revision Behavior

The synthesis of evidence for RQ1 confirms that WCF generally improves revision, but its effectiveness is shaped by multiple contextual factors: the linguistic feature targeted, the explicitness of feedback, and the instructional modality employed (Ekanayaka & Ellis, 2020; Valizadeh, 2020; Kao et al., 2025). Explicit feedback particularly Direct Corrective Feedback (DCF) and Metalinguistic Explanation (ME) tends to produce the most immediate and accurate revisions, reducing cognitive load and allowing learners to quickly identify and correct errors (Diab, 2015; Zheng & Yu, 2018; Wirantaka, 2022). While implicit feedback can still be effective for some learners, aligning feedback explicitness with developmental readiness is critical to ensure meaningful revisions (Subon & Ali, 2022; Han & Hyland, 2015).

The debate between focused and unfocused WCF highlights the need for pedagogical balance. Focused feedback, targeting one linguistic feature, can accelerate mastery of that feature but may inadvertently weaken adjacent, untreated forms (Endley & Karim, 2022; Shintani et al., 2014). Unfocused feedback mirrors natural classroom practice and supports global revision without forcing structural simplification, though its efficacy varies depending on the complexity of the target structure (Ghane et al., 2024; Kao et al., 2025; Valizadeh, 2022). Mandatory revision policies amplify WCF's impact, reinforcing the need to couple correction with active output to consolidate learning (Ekanayaka & Ellis, 2020; Shintani et al., 2014).

One possible explanation for the apparent superiority of explicit feedback is methodological rather than pedagogical. Most of the studies included in this review employed short intervention periods and measured immediate

revision outcomes. Under such conditions, direct feedback naturally produces quicker and more visible gains. It therefore remains unclear whether explicit feedback is inherently more beneficial or simply better suited to short-term instructional contexts. Longitudinal classroom-based studies are needed to determine whether learners eventually benefit more from feedback that encourages deeper cognitive processing and self-correction.

4.3. Interpretation of Findings for RQ2: Learner Perceptions and Revision Behavior

Learner perceptions function as a critical bridge between feedback and revision. Positive emotions enjoyment, confidence, and pride promote thorough, sustained revisions, whereas negative feelings like frustration and hopelessness can inhibit engagement even when feedback is clear and accurate (Ghane et al., 2024; Salami & Khadawardi, 2022; Han & Hyland, 2015). Proficiency moderates how learners process feedback: lower-proficiency students often notice errors without deeper understanding, producing superficial revisions, whereas higher-proficiency learners can leverage less explicit cues for accurate self-correction (Zheng & Yu, 2018; Han & Hyland, 2015; Zhang et al., 2021).

Learners also respond positively to SRL-oriented feedback, which frames WCF as a tool for metacognitive development. Such approaches foster autonomous revision, strategic planning, and continuous monitoring of errors, transforming feedback from a static evaluation into a dynamic, goal-directed process (Yang et al., 2023). In technologically mediated contexts, automated feedback is valued for immediacy and accessibility, though students note limitations in handling complex structures and higher-order writing concerns (Rahimi et al., 2025).

4.4. Interpretation of Findings for RQ3: Methodological Gaps and Future Directions

Despite the breadth of evidence supporting WCF, methodological limitations persist. Short-term interventions, small samples, and narrow variable isolation restrict both ecological validity and the ability to track long-term acquisition (Lee, 2020; Storch, 2018; Yu & Yang, 2021; Endley & Karim, 2022). Future research should integrate longitudinal, multi-variable designs with technological tools like AWE and keystroke logging to capture real-time revision behavior, triangulating objective data with qualitative insights for richer, more robust findings (Cheng et al., 2023; Han & Hyland, 2015; Tian et al., 2023).

Despite considerable agreement regarding the benefits of explicit feedback, several important questions remain unanswered. Little is known about how learners transfer feedback across writing tasks, how revision behavior develops over time, or whether successful revision necessarily results in long-term language development. Furthermore, studies differ substantially in their operationalization of revision behavior, making direct comparison difficult. These unresolved issues suggest that revision processes deserve greater scholarly attention than simple comparisons among feedback types.

Based on the synthesis of empirical findings, several practical implications for classroom practice can be drawn, particularly for teachers and curriculum designers working in EFL writing contexts which is summarized in the following Table.

Table 3. *Pedagogical Implications*

Classroom Situation	Recommended Feedback Type
Lower proficiency learners	Direct feedback + metalinguistic explanation
Advanced learners	Indirect feedback
Large writing classes	Technology-assisted WCF
Multiple error categories	Unfocused WCF
Specific grammatical targets	Focused WCF
Self-regulated learning contexts	SRL-based feedback

First, one of the most consistent messages from the literature is that feedback should be adjusted according to learners' proficiency levels. Students with lower proficiency tend to benefit more from highly explicit forms of feedback, such as Direct Corrective Feedback (DCF) and Metalinguistic Explanation (ME), because these reduce cognitive overload and make the required correction immediately visible. In contrast, more proficient learners are generally better positioned to handle less explicit feedback. For them, indirect cues can serve as a useful prompt for reflection and self-correction, gradually encouraging greater independence in the revision process (Diab, 2015; Zheng & Yu, 2018; Zhang et al., 2021).

Another clear implication is the importance of making revision an essential and structured part of the writing process rather than an optional activity. Learners are more likely to benefit from WCF when they are required to revise their drafts and are guided in how to do so effectively. Practical tools such as error logs, guided reflection tasks, and repeated practice with similar grammatical structures can help learners turn feedback into longer-term learning rather than one-off corrections (Ekanayaka & Ellis, 2020; Yang et al., 2023).

The findings also point to the value of integrating technology into feedback practices. Automated Writing Correction (AWC) tools and Automated Writing Evaluation (AWE) systems can help manage the time-consuming nature of providing detailed feedback, especially in large classes. By handling more surface-level corrections, these tools allow teachers to devote greater attention to higher-order aspects of writing, such as organization, argument development, and individualized support for learners (Cheng et al., 2023; Rahimi et al., 2025).

Equally important is the emotional dimension of feedback. The literature consistently shows that learners' feelings toward feedback strongly influence how they respond to it. For this reason, WCF should be delivered in a way that is supportive and development-oriented rather than purely corrective or judgmental. When feedback is framed as guidance for improvement rather than criticism of failure, it can reduce anxiety, strengthen confidence, and encourage more sustained engagement with revision tasks (Ghane et al., 2024; Han & Hyland, 2015; Wirantaka, 2022).

Finally, teachers are encouraged to adopt a balanced approach to the scope of feedback. Not all errors require the same level of attention. A more unfocused approach can be useful for frequent and relatively simple issues such as article usage, where repeated exposure supports learning. At the same time, focused feedback may be more appropriate for complex or less predictable structures, such as prepositions or hypothetical conditionals, where targeted attention is needed to avoid confusion and negative transfer (Kao et al., 2025; Endley & Karim, 2022; Valizadeh, 2022). By implementing these evidence-informed strategies, instructors and curriculum designers can foster both immediate gains in revision accuracy and long-term development of autonomous writing skills.

A key limitation of this systematic review lies in the nature of synthesis research itself, particularly its dependence on the availability and quality of existing empirical studies, which makes long-term validation across diverse contexts inherently difficult (Yu & Yang, 2021). In other words, the conclusions drawn here are only as strong as the studies they are based on. Many of these primary studies also face well-documented concerns regarding ecological validity, often relying on small or relatively homogeneous samples, highly controlled experimental conditions, or short intervention periods that do not fully reflect authentic classroom writing development (Kao et al., 2025; Mao et al., 2024; Zheng & Yu, 2018).

Another challenge stems from differences in how key constructs are defined and measured across studies. Terms such as *revision success* or *metalinguistic knowledge* are not always operationalized in the same way, which makes comparison and synthesis more complex than it might initially appear (Cheng et al., 2023; Valizadeh, 2022). In addition, the decision to exclude unpublished or grey literature, such as dissertations and working papers, may have introduced a degree of publication bias, as studies reporting significant or positive findings are generally more likely to appear in peer-reviewed journals (Li, 2010; Mao et al., 2024).

Across the literature, two issues appear particularly persistent: sampling limitations and short intervention designs (Yu & Yang, 2021). Many studies are based on small, localized participant groups, often drawn from a single institution or a narrow proficiency range. While such designs allow for close observation, they inevitably limit how far the findings can be generalized, especially when considering the diversity of EFL learning contexts worldwide (Han & Hyland, 2015; Kao et al., 2025; Zheng & Yu, 2018). Similarly, most interventions are relatively brief, sometimes limited to just one or two feedback cycles, which makes it difficult to determine whether observed improvements in revision behavior are sustained over time or simply short-term effects (Ekanayaka & Ellis, 2020; Endley & Karim, 2022; Yu & Yang, 2021).

There are also methodological difficulties in separating the effects of WCF from other influencing factors, such as learner motivation, instructional variation, or even students' independent use of external resources (Cheng & Zhang, 2021; Subon & Ali, 2022). In addition, the field continues to struggle with the consistent coding of complex and often subjective constructs. Much of the available evidence relies on retrospective self-report data, such as interviews or verbal reports, which can be influenced by memory limitations or participants' desire to present their behavior in a more favorable light (Han & Hyland, 2015). These challenges are further compounded by the lack of fully standardized coding

frameworks, which makes cross-study comparison and synthesis more difficult than ideal (Cheng et al., 2023; Valizadeh, 2022).

5. Conclusions

This systematic review examined how teacher-written corrective feedback (WCF) influences EFL learners' revision behavior in studies published between 2010 and 2025. One notable development reflected in the studies published between 2010 and 2025 is a shift in focus from identifying effective feedback techniques to understanding the complex relationship among feedback, learner engagement, and revision processes. Contemporary WCF research increasingly recognizes that revision is not merely the correction of linguistic errors but a cognitive, emotional, and self-regulated activity shaped by multiple contextual factors. This shift represents an important conceptual development within the field and offers promising directions for future research.

Regarding RQ1, the reviewed studies suggest that explicit forms of teacher-written corrective feedback, particularly Direct Corrective Feedback and Metalinguistic Explanation, are generally helpful in supporting learners' revision processes, especially when learners have lower levels of language proficiency. These forms of feedback seem to provide clearer guidance and make it easier for learners to identify and address problems in their writing. At the same time, the findings indicate that the value of written corrective feedback depends greatly on the context in which it is provided. Factors such as learners' proficiency levels, instructional goals, and the nature of the revision task, and when the feedback is given all shape how learners understand and use teacher comments. This suggests that there is no one-size-fits-all approach to written corrective feedback. Instead, feedback is likely to be most beneficial when it is tailored to learners' needs and used in ways that support the specific objectives of the writing task.

The synthesis addressing RQ2 also highlights that learners' responses to feedback are not purely cognitive but are strongly shaped by affective and proficiency-related factors. Positive emotional engagement tends to support deeper and more sustained revision, whereas lower proficiency can limit learners' ability to interpret and apply more implicit forms of feedback (Ghane et al., 2024; Zheng & Yu, 2018).

With regard to RQ3, the review reveals a field that has made substantial progress but still faces recurring methodological limitations, particularly in relation to ecological validity, short intervention periods, and the need for more advanced tools capable of capturing the dynamic nature of revision processes in real time (Mao et al., 2024; Yang et al., 2023).

Over the period from 2010 to 2025, WCF research has clearly evolved. Earlier work focused largely on whether feedback is effective at all, while more recent studies have shifted toward understanding *how* it works and under what conditions it is most effective (Han & Hyland, 2015; Mao et al., 2024). At the same time, researchers have expanded the range of outcomes considered, moving beyond simple accuracy to include syntactic complexity, learner anxiety, and self-efficacy (Valizadeh, 2022; Ghane et al., 2024; Thi & Nikolov, 2023). Technological developments have also begun to reshape the field, particularly through the growing use of Automated Writing Evaluation (AWE) systems and digital tracking tools that allow for more detailed analysis of revision behavior (Cheng et al., 2023; Rahimi et al., 2025).

Looking ahead, future research would benefit from designs that follow learners over longer periods and across multiple instructional cycles, allowing for a more realistic understanding of how WCF contributes to writing development over time (Ekanayaka & Ellis, 2020; Endley & Karim, 2022). Combining fine-grained process data, such as keystroke logging, with qualitative insights from learners themselves could also provide a more complete picture of revision as a cognitive and developmental process (Yang et al., 2023; Tian et al., 2023). Finally, there is a growing need for research that bridges the gap between theoretical recommendations and classroom realities, possibly through collaborative or action-oriented studies that directly address the constraints teachers face in implementing WCF effectively (Mao et al., 2024).

Perhaps the most important insight emerging from this review is that teacher-written corrective feedback should not be conceptualized as a single pedagogical practice. The effectiveness of WCF is fundamentally mediated by learner characteristics, revision requirements, instructional contexts, and temporal factors. The question is therefore no longer whether written corrective feedback works, but under what conditions, for whom, and for which aspects of writing development it works most effectively. Future scholarship would benefit from moving beyond simple comparisons of feedback types toward more context-sensitive models of feedback and revision.

Generative AI Use Statement

The authors used generative AI tools solely for language polishing and formatting assistance, and all content, analysis, and conclusions presented in this article remain the authors' own original work.

Conflict of Interest

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