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Research Article

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Abstract

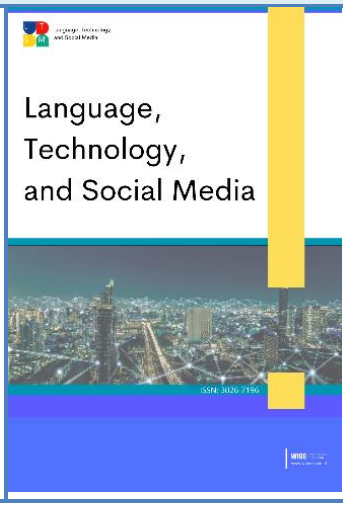
This study examines how written corrective feedback (WCF) can be operationalized within Zone of Proximal Development (ZPD)-based writing worksheets to support EFL university students' academic writing. A structured integrative review was conducted using a focused corpus of fourteen peer-reviewed studies on WCF, learner engagement, scaffolding, and technology-mediated feedback, supported by foundational and methodological literature. The review used eligibility screening, an analytic matrix, thematic coding, and narrative synthesis. The findings indicate that WCF is most educationally useful when it is focused, timely, interpretable, linked to revision, and responsive to learners' demonstrated needs. The evidence also shows that feedback uptake depends on learners' engagement and that digital tools can accelerate feedback cycles but cannot independently provide the contextual mediation required for complex academic writing. The synthesis yields a five-stage design framework: diagnostic baseline, guided planning, drafting with focused feedback, dialogic revision, and fading with transfer. The framework positions a worksheet as feedback infrastructure rather than as a static exercise sheet. Its contribution is a conceptually integrated model that specifies the form, timing, and gradual withdrawal of feedback for EFL academic writing; its effectiveness requires subsequent development and experimental testing.

Keywords: Academic Writing; Corrective Feedback; EFL; Scaffolding; Writing Worksheet; Zone of Proximal Development.

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INTRODUCTION

Academic writing in English as a foreign language (EFL) is not merely a matter of producing grammatically accurate sentences. It is a recursive and socially situated practice in which writers must plan claims, select and evaluate evidence, organize rhetorical moves, integrate sources ethically, monitor reader expectations, and revise in response to feedback. Contemporary models of writing accordingly position writing as the coordinated activity of individual cognitive resources, task demands, and the wider academic community [1], [2]. For university students, the ability to write academically is therefore closely tied to participation in disciplinary learning, academic identity, and the capacity to communicate knowledge in ways that are credible to scholarly readers.

Within this process, feedback is one of the principal mechanisms through which students can recognize the gap between their present performance and an expected academic standard. Feedback can clarify success criteria, identify priorities for revision, and support the strategic decisions required to improve a text [3], [4], [5]. Yet the provision of comments alone does not guarantee learning. Students must notice the feedback, interpret its meaning, evaluate its relevance to their own texts, and convert it into a concrete revision action. This capacity to make productive use of feedback is widely described as feedback literacy [6]. In EFL academic writing, this challenge is intensified because students may need to process linguistic explanations, genre expectations, and disciplinary conventions simultaneously.

Written corrective feedback (WCF) is consequently a persistent and contested feature of L2 writing instruction. Earlier debate questioned whether grammar correction could contribute to durable language development [7], [8]. More recent classroom research and meta-analytic evidence indicate that WCF can support selected dimensions of written accuracy, especially when feedback is systematic, limited to manageable targets, and connected to opportunities for revision and subsequent writing [9], [10], [11]. Longitudinal work also suggests that the value of feedback depends on continuity across drafts and tasks rather than on a single correction episode [12], [13], [14]. These findings shift attention away from a binary question of whether feedback works toward a more consequential design question: under what conditions can feedback become usable learning support for particular writers and writing tasks?

The design of feedback is particularly important because direct, indirect, coded, metalinguistic, electronic, and automated forms of WCF impose different cognitive demands on students [10], [15], [16]. Direct feedback may be necessary when learners confront unfamiliar conventions or when misunderstanding would obstruct further progress. Conversely, indirect or coded feedback may stimulate diagnosis and self-correction when learners have sufficient prior knowledge and explicit guidance. Students' beliefs, motivation, affect, and perceptions of the feedback source also influence whether a comment is taken up in revision [17], [18], [19], [20], [21], [22]. Digital tools can shorten feedback cycles, preserve revision histories, and provide automated diagnostic cues, but they do not independently resolve the interpretive, rhetorical, and disciplinary demands of academic writing [23].

A sociocultural perspective offers a strong theoretical basis for integrating these considerations. The Zone of Proximal Development (ZPD) frames learning as movement from what a learner can accomplish independently toward what can be accomplished with appropriately calibrated assistance [24], [25]. Within this view, corrective feedback should not be treated as detached error marking. It is a form of mediation that is contingent on learner evidence, responsive to the difficulty of the task, and progressively withdrawn as learners gain greater control [26], [27],

[28]. Structured prompts, annotated models, peer interaction, reflection, and staged revision can make this mediation visible and manageable in writing instruction [29], [30]. Although feedback research has frequently discussed scaffolding as an interpretive concept, fewer studies translate it into a complete instructional-material sequence that organizes support before, during, and after writing.

This article addresses that gap by developing an evidence-informed framework for integrating WCF into ZPD-based writing worksheets for EFL academic writing. It pursues three objectives: first, to synthesize how prior studies represent WCF, learner engagement, scaffolding, and technology-mediated feedback; second, to identify the conditions under which feedback can operate as developmentally appropriate mediation; and third, to formulate a staged worksheet architecture that links diagnosis, planning, drafting, revision, reflection, fading, and transfer. The contribution is conceptual and pedagogical rather than causal: the article specifies how the timing, explicitness, accountability, and gradual withdrawal of corrective feedback can be embedded in an instructional worksheet. The remainder of the article reviews relevant literature, describes the structured integrative review method, presents the synthesis results, discusses theoretical and practical implications, and concludes with limitations and directions for empirical validation.

LITERATURE REVIEW

Written Corrective Feedback in Academic Writing

WCF refers to responses to learners' written production that identify, explain, or guide the improvement of linguistic accuracy, rhetorical organization, source integration, argumentation, and academic conventions. It may take the form of direct correction, underlining, marginal codes, metalinguistic explanations, electronic annotations, audio comments, model-text comparison, or guided revision prompts. Ellis's typology demonstrates that feedback form, timing, and learner response are interconnected design decisions rather than independent choices [10]. A correction that identifies an error without requiring the learner to interpret or act on it may improve a local sentence but provide limited support for transferable writing development.

The empirical literature provides qualified support for WCF. Studies have found that focused feedback can contribute to improvements in selected grammatical features and that repeated opportunities to revise can strengthen the relationship between noticing, correction, and subsequent performance [9], [12], [13], [14], [15], [16]. However, the evidence does not support an unconditional preference for any single feedback mode. Direct feedback may be more accessible for unfamiliar academic conventions, whereas indirect and coded feedback can encourage learners to diagnose their own problems when they are equipped with an understandable code legend, model examples, and sufficient prior knowledge. The instructional issue is therefore calibrated explicitness: the amount and form of corrective information should correspond to the learner's present control of the target feature and the cognitive complexity of the writing task.

WCF should also be interpreted within a broader formative-feedback process. Effective feedback makes success criteria visible, provides actionable information, and gives learners the opportunity to close a performance gap through planned revision [3], [4], [5]. In academic writing, this means that feedback is most useful when it is connected to task goals, genre-specific criteria, and a revision pathway. A writing worksheet can support this connection by identifying priority targets in advance, providing a feedback legend, requiring a revision memo, and asking students to

explain the rationale for their changes. Such features reposition WCF from a reactive response to error toward a planned resource for learning and self-regulation.

ZPD and Corrective Feedback as Mediated Scaffolding

ZPD-oriented pedagogy conceptualizes learning as assisted performance that can become progressively independent. Aljaafreh and Lantolf framed negative feedback as regulation within the ZPD, emphasizing the need for negotiated, contingent, and graduated assistance rather than fixed correction [24]. This position is compatible with wider scholarship on scaffolding, which identifies contingency, fading, and transfer of responsibility as central features of meaningful support [25], [26], [27], [28]. Assistance is therefore not synonymous with simplification: it should help learners engage with intellectually demanding work while gradually assuming more control over planning, monitoring, and revision.

In academic writing, ZPD alignment requires evidence of what a student can already do without assistance and what the student can accomplish with carefully targeted support. The same feedback form may be enabling for one writer but excessive or insufficient for another. For example, a novice who cannot identify a source-integration problem may benefit from an annotated model and direct explanation, while a more experienced writer may benefit more from a prompt asking for a justification of a citation choice. This implies that feedback intensity must be linked to diagnostics, not merely to the teacher's preference for a direct or indirect technique.

A worksheet can operationalize this principle by sequencing tasks from supported to more independent performance. Diagnostic micro-tasks can identify current difficulties; planning prompts can externalize claim-evidence reasoning; model texts can make genre expectations observable; focused feedback can direct attention to high-priority problems; and revision memos can require students to articulate what they changed and why. Question prompts and structured peer interaction are particularly relevant because they externalize cognitive and metacognitive activity that learners may not yet perform consistently alone [29]. Research on online scaffolding similarly indicates that structured support can assist complex learning when it is aligned with task demands and learner readiness [30].

Digital Worksheets as Feedback Infrastructure

Digital writing environments broaden the timing, format, and traceability of feedback. Learning-management systems, shared documents, automated writing evaluation, online peer review, and AI-enabled writing tools can store drafts, display comments, track revisions, facilitate asynchronous discussion, and provide rapid diagnostic information. These affordances are relevant to academic writing because they make the process of drafting and revision more visible to both students and teachers. However, technological speed is not equivalent to pedagogical adequacy. Students' engagement with teacher and automated feedback differs according to perceived credibility, specificity, clarity, and access to subsequent dialogue [18], [19].

Technology-mediated feedback is most productive when it is embedded within an instructional sequence that requires interpretation, decision making, and revision. Integrated feedback approaches that connect comments to discussion, self-assessment, and follow-up writing are more likely to support sustained engagement than isolated automated suggestions [20], [21]. Digital tools should therefore operate as feedback infrastructure: they can preserve evidence, facilitate communication, and offer preliminary diagnosis, but they should not replace human

judgment about rhetorical appropriateness, source use, academic integrity, or disciplinary argumentation.

For ZPD-based writing worksheets, digital platforms can host annotated model texts, task prompts, rubrics, coded-feedback legends, audio or written comments, peer-response spaces, and revision logs. The worksheet provides the pedagogical sequence, whereas the technology supports access, traceability, and collaboration. Engagement research further indicates that students' responses to feedback have behavioral, cognitive, and affective dimensions [22]. An effective digital worksheet must therefore assess more than the number of corrected errors; it should also document how students interpreted feedback, what actions they took, and how they evaluated their own developing performance.

METHODS

Review Design and Research Questions

This study employed a structured integrative literature review to construct a conceptual and pedagogical framework for ZPD-based writing worksheets. An integrative review is appropriate when a research problem requires the combination of empirical findings, theoretical concepts, design principles, and methodological guidance rather than the estimation of a single pooled effect size [32], [33], [34], [35]. The review was intentionally designed as a focused, theory-building synthesis. It does not claim to be a systematic review or meta-analysis because the purpose was to identify transferable mechanisms and instructional design requirements across a conceptually bounded body of scholarship.

Three review questions guided the analysis: (RQ1) What forms, functions, and reported conditions of effectiveness characterize WCF in the focal literature? (RQ2) How do learner engagement, scaffolding, and feedback interpretation shape the use of WCF as mediated support? and (RQ3) What design requirements can be derived for a ZPD-based academic-writing worksheet? These questions distinguish the present review from a descriptive bibliography. The objective was not simply to summarize published findings, but to translate recurring patterns into a transparent design framework that can guide later development, feasibility testing, and intervention research.

Corpus Boundaries and Eligibility Criteria

The review used a focal corpus of fourteen peer-reviewed studies that directly informed at least one of four domains: WCF type and effect, learner engagement with feedback, scaffolding or ZPD-oriented mediation, and technology-mediated feedback in writing. Foundational work on formative feedback, ZPD, scaffolding, review methodology, and thematic synthesis was retained as interpretive literature. It was not counted as part of the fourteen-study focal corpus because its role was to clarify the mechanisms and analytical procedures used to interpret the focal evidence.

Eligibility was determined through conceptual relevance, methodological transparency, and instructional transferability. Studies were included when they examined L2/EFL writing or feedback processes relevant to planning, drafting, feedback interpretation, revision, reflection, or transfer; when they provided empirical findings or substantive design implications; and when complete bibliographic information and a resolvable DOI were available. Studies were excluded when they were unrelated to writing or feedback, reported correction only as an outcome-producing procedure without pedagogical explanation, lacked sufficient conceptual or methodological detail

for analysis, or concerned oral correction without a transferable implication for written revision. Table 1 presents the operational criteria used to maintain a focused and analytically coherent corpus.

Table 1. Review Protocol, Corpus Boundary, and Eligibility Criteria

Review domain	Operational decision	Included evidence	Excluded evidence
Review type	Structured integrative, theory-building review.	Empirical, conceptual, and design-relevant literature used to construct a pedagogical framework.	Claims requiring pooled effect-size estimation or exhaustive systematic coverage.
Focal corpus	Fourteen peer-reviewed studies.	Studies directly informing WCF, learner engagement, technology-mediated feedback, or written-revision processes.	Foundational theory and methodological sources counted as focal evidence.
Context	L2/EFL writing and transferable written-feedback processes.	Academic-writing relevant contexts, planning, drafting, revision, reflection, and transfer.	Studies unrelated to writing or without a transferable implication for written revision.
Publication integrity	Full bibliographic traceability and DOI verification.	Peer-reviewed sources with sufficient methodological or conceptual information for analysis.	Unverifiable records, items without a resolvable DOI, or sources with insufficient detail.
Instructional relevance	Explicit feedback or design implications.	Evidence concerning feedback form, timing, uptake, dialogue, scaffolding, fading, or digital affordances.	Correction reported solely as a score-producing procedure without pedagogical explanation.

Source Identification and Study Selection

Source identification followed a targeted and iterative retrieval strategy. Search terms represented the four analytical domains and included combinations of 'written corrective feedback,' 'WCF,' 'academic writing,' 'EFL writing,' 'feedback engagement,' 'zone of proximal development,' 'scaffolding,' 'revision,' 'writing worksheet,' 'automated writing evaluation,' and 'technology-mediated feedback.' Citation chaining was then used to locate conceptually connected work, particularly where studies addressed feedback uptake, contingent mediation, or digital feedback practices. The search strategy prioritized conceptual coverage and design relevance rather than exhaustive database-wide enumeration.

Selection occurred in two stages. First, titles, abstracts, and available bibliographic records were screened against the eligibility criteria. Second, the retained studies were read in full to confirm that they provided sufficient information about the feedback form, learning context, learner response, outcome claims, and implications for instructional design. The final focal corpus was intentionally heterogeneous because the framework required evidence across linguistic accuracy, feedback engagement, scaffolding mechanisms, and digital affordances. Consistent with guidance on transparent review reporting, the article states its review type, corpus boundary, selection logic,

and synthesis purpose rather than presenting an unsupported claim of exhaustive coverage [36], [37], [40].

Data Extraction and Critical Appraisal

A structured review matrix was used to extract comparable evidence from every focal study. The matrix recorded publication details, study aim, learner population and educational setting, feedback source and form, writing stage, targeted outcome, learner-engagement indicators, evidence of mediation or scaffolding, reported limitations, and implications for worksheet design. This extraction process ensured that the review did not equate all positive feedback findings. A reported increase in grammatical accuracy, for example, was distinguished from evidence of feedback interpretation, revision quality, motivation, or independent transfer.

The studies were appraised qualitatively rather than assigned a numerical quality score because the corpus included experiments, longitudinal studies, classroom investigations, engagement studies, and technology-focused reviews. Appraisal considered whether the research question matched the design, whether the feedback procedure was sufficiently described, whether outcome claims were aligned with evidence, whether learner engagement was examined beyond correction counts, and whether limitations were acknowledged. This appraisal supported cautious synthesis: findings were treated as evidence of conditions and mechanisms, not as proof that one feedback technique is universally superior. Table 2 details the analytic dimensions and decision rules used in the matrix.

Table 2. Analytical Framework and Coding Decision Rules

Analytic dimension	Guiding question	Evidence extracted	Decision rule for synthesis
Feedback form	What feedback form and level of explicitness are described?	Direct, indirect, coded, metalinguistic, electronic, or automated feedback.	Do not rank forms universally; link mode to interpretability and learner readiness.
Writing stage	At what point in the writing process does support occur?	Diagnostic, planning, drafting, revision, reflection, or transfer phase.	Retain only evidence that can be positioned within a complete writing sequence.
Learner engagement	How do students interpret and use feedback?	Noticing, affect, beliefs, motivation, self-explanation, revision, and feedback-source response.	Distinguish revision count from cognitive and affective engagement.
Mediation and scaffolding	How is support contingent and reduced?	Prompting, models, dialogue, peer support, explicit explanation, fading, and independent performance.	Treat scaffolding as ZPD-aligned only when support is adjustable and oriented to autonomy.
Technology affordance	What does the technology make possible?	Feedback speed, traceability, collaboration, automated diagnosis, and revision history.	Position technology as pedagogical infrastructure, not autonomous judgment.

Analytic dimension	Guiding question	Evidence extracted	Decision rule for synthesis
Outcome claim	What can the study legitimately support?	Accuracy, revision quality, engagement, perceptions, or transfer evidence.	Separate direct evidence from theoretical inference and framework proposal.

Thematic Coding and Framework Synthesis

The analysis combined deductive and inductive coding. Deductive codes were derived from the conceptual literature on formative feedback, feedback literacy, WCF, ZPD, and scaffolding. These included feedback focus, explicitness, timing, learner uptake, dialogue, contingency, fading, reflection, and transfer. Inductive coding was conducted through repeated reading of the focal studies to identify patterns not fully specified in advance, including feedback-source credibility, affective response, revision accountability, automated-feedback interpretation, and the role of digital traceability.

Coding proceeded through four recursive stages: initial coding of each study, grouping of codes into categories, comparison across studies, and integrative interpretation. The resulting categories were then translated into a design sequence only when they were supported by more than one strand of evidence or by a strong convergence between empirical findings and established scaffolding principles. The thematic process followed established guidance on thematic analysis and qualitative synthesis [38], [39]. The final output is the five-phase worksheet framework presented in Figure 1 and Table 4; it is a conceptual specification that identifies what each phase should collect, support, and gradually withdraw.

Trustworthiness, Reflexivity, and Ethical Considerations

Trustworthiness was strengthened through an explicit audit trail comprising the eligibility criteria, review matrix, coding dimensions, and correspondence between evidence categories and design features. The first author coordinated initial extraction and coding, while the co-authors cross-checked the category definitions, discussed interpretive differences, and agreed on the final framework. The team also distinguished direct empirical findings from theoretical inferences. For example, studies of oral interaction and general scaffolding were used to clarify the logic of contingent support, not as direct evidence of academic-writing outcomes.

The review did not collect data from human participants, use personal records, or involve intervention procedures; therefore, formal human-subject ethical approval was not required. Nevertheless, the study followed principles of scholarly integrity by retaining the boundary between evidence and proposal, avoiding causal claims that exceeded the reviewed corpus, and representing automated feedback as a supporting technology rather than an autonomous instructional solution. The framework should consequently be interpreted as a research-informed design proposition that requires content validation, classroom feasibility analysis, and empirical testing before claims of effectiveness are made

RESULTS AND DISCUSSION

Results

Evidence Profile and Outcome Domains of the Focal Corpus

The focal corpus contained fourteen peer-reviewed studies distributed across three connected evidence strands. Seven studies examined the scope, timing, or accuracy-related effects of WCF; six focused on learner engagement, feedback source, revision behavior, or motivation; and one considered the instructional affordances of emerging feedback technologies. Table 3 summarizes the focus and principal findings of the focal studies. The corpus did not offer a single, uniform definition of successful feedback. Instead, the studies measured different outcomes, including selected linguistic accuracy, revision quality, feedback interpretation, motivation, engagement, and the use of automated suggestions.

The corpus was also heterogeneous in learner population, educational level, target feature, feedback source, task type, and research design. This variation is analytically important because it prevents a simplistic claim that any particular feedback technique is universally effective. The focal studies collectively provide evidence about conditions under which feedback can be understood, used, and integrated into revision. They do not provide a direct test of a complete ZPD-based writing worksheet. No focal study described an integrated sequence that combined diagnostic evidence, calibrated corrective feedback, dialogic revision, documented fading of support, and a transfer task within one academic-writing material. This absence identifies the design space addressed by the framework.

The outcome profile further showed that most studies reported local or medium-range effects, such as improvement in specific linguistic features, quality of immediate revisions, or students' responses to feedback. Far fewer studies examined whether students could independently transfer the same learning to a new writing task. This pattern supports the need for a worksheet architecture that includes a transfer phase rather than ending after students submit a revised draft.

Table 3. Evidence Profile of the Fourteen-Study Focal Corpus

Study	Primary focus	Reported evidence category	Key result for the synthesis
Bitchener [9]	Direct WCF and L2 written accuracy	Selected linguistic accuracy	Systematic WCF can support selected target features.
Kang and Han [11]	Meta-analysis of WCF effectiveness	Conditional effectiveness	Effects vary by design, target, and learning context.
Bitchener and Knoch [12]	WCF for migrant and international students	Writing development	Feedback value depends on learner needs and sustained use.
Bitchener and Knoch [13]	Longitudinal WCF	Delayed development	Repeated feedback cycles support continued attention to targets.

Study	Primary focus	Reported evidence category	Key result for the synthesis
Bitchener and Knoch [14]	Advanced L2 writers and WCF	Accuracy development	Focused feedback remains relevant beyond beginner proficiency.
Ellis et al. [15]	Focused versus unfocused WCF	Feedback scope	Scope influences cognitive demand and revision conditions.
Sheen et al. [16]	Focused and unfocused correction	Interpretability and use	Correction must be understandable and followed by opportunity to apply it.
Han and Hyland [17]	Engagement with teacher WCF	Behavioral, cognitive, and affective engagement	Beliefs and emotions influence whether feedback is used.
Zhang and Hyland [18]	Teacher versus automated feedback	Feedback source and engagement	Feedback source affects interpretation and revision pathways.
Zhang [19]	Automated writing evaluation feedback	Automated-feedback uptake	Students need support to interpret automated suggestions.
Zhang and Hyland [20]	Integrated feedback approach	Pedagogical integration	Engagement increases when feedback is embedded in revision pedagogy.
Yu et al. [21]	Feedback, motivation, and engagement	Motivation and engagement	Feedback practices have cognitive and affective consequences.
Wang and Xu [22]	Engagement measurement	Engagement dimensions	Feedback engagement extends beyond correction counts.
Klimova [23]	Emerging feedback technologies	Technology affordance	Technology improves access and speed but requires pedagogical orchestration.

Reported Effects of Written Corrective Feedback and Revision Conditions

The synthesis identified four recurrent conditions associated with productive WCF use: a limited and transparent feedback focus, an understandable feedback mode, an immediate opportunity to revise, and a mechanism that requires students to document or explain their revision decisions. Focused WCF studies reported that limiting correction to high-priority targets can make feedback more manageable than distributing attention across many unrelated error categories [9], [13], [14], [15], [16]. The studies did not establish a fixed ideal number of targets, but they consistently

indicated that feedback scope should be aligned with task objectives, genre demands, and learners' current control of the targeted feature.

The evidence also differentiated feedback modes. Direct correction was reported as useful when students needed an accessible model of an unfamiliar form or convention. Indirect, coded, and metalinguistic feedback supported more active problem solving when students could interpret the feedback and had a clear route to self-correction. Across feedback modes, revision opportunity was crucial: comments that were not followed by a requirement to revise, compare, or explain could not demonstrate whether learners had made productive use of the feedback. The reported pattern therefore concerns the relationship among feedback form, interpretability, and revision activity rather than a universal hierarchy of techniques.

Repeated feedback cycles were another recurring feature. Longitudinal studies suggested that feedback can remain valuable across tasks when students revisit the same target and encounter opportunities to apply it again [12], [13], [14]. The focal corpus did not show that correction alone produces durable independence. Instead, it indicates that recurrence, consistency, and progressively adjusted support are necessary conditions for moving from assisted correction toward more stable control.

Learner Engagement and Interpretation of Feedback

Learner engagement emerged as a distinct evidence category. The engagement studies showed that students' responses to WCF include behavioral actions, such as revising or consulting comments; cognitive actions, such as interpreting feedback and evaluating alternatives; and affective responses, such as confidence, frustration, or trust in the feedback source [17], [18], [20], [21], [22]. This means that revision counts cannot serve as the sole indicator of feedback use. A visible textual change may reflect thoughtful engagement, superficial compliance, or an uncritical acceptance of a suggested revision.

The focal studies further indicated that feedback-source characteristics influence engagement. Teacher feedback, peer feedback, and automated feedback are interpreted differently because they differ in perceived authority, accessibility, specificity, and potential for dialogue. Automated feedback can provide rapid and traceable indications of possible problems, but the studies showed that students may require support to decide whether a suggestion is accurate, relevant, or rhetorically appropriate [18], [19], [23]. This result highlights the importance of requiring students to verify, accept, revise, reject, or query feedback rather than treating automated output as a final judgment.

The engagement findings also showed that students benefit from a non-threatening and transparent feedback environment. When criteria, codes, and expectations are clear, feedback is more likely to be seen as information for improvement rather than as a final evaluation of ability. The data therefore support design features such as feedback legends, response boxes, revision memos, self-explanation prompts, and short teacher or peer conferences. These features make feedback uptake observable and provide evidence of how students are using the assistance.

ZPD-Based Worksheet Design Requirements

The design synthesis produced a five-phase worksheet architecture: diagnostic baseline, guided planning, drafting with focused feedback, dialogic revision, and fading with transfer. Each phase combines a learner-evidence component, a scaffold or feedback action, and a criterion for reducing

support. The architecture responds to the corpus by ensuring that feedback is neither detached from writing goals nor delivered as a one-time correction event. Figure 1 visualizes the progression from diagnosis to increasingly independent performance, while Table 4 specifies the instructional action and fading criterion associated with each phase.

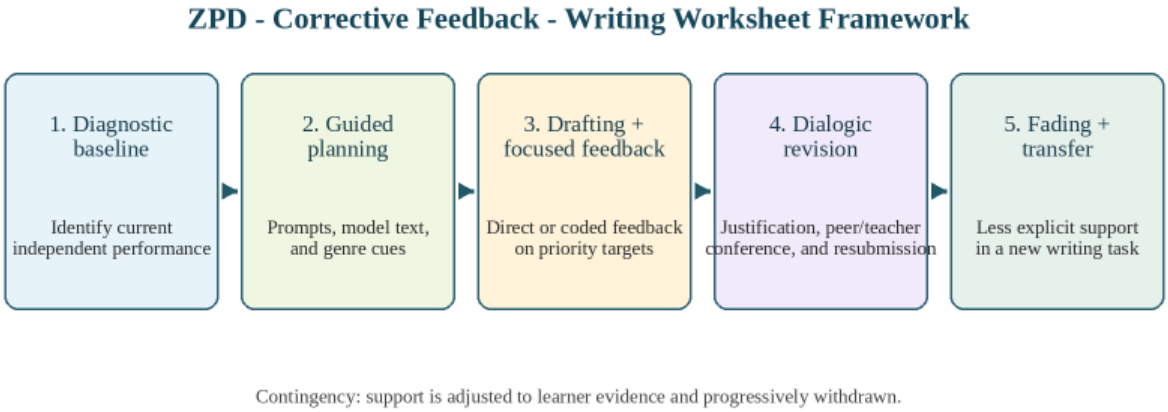


Figure 1. Proposed ZPD - Corrective Feedback - Writing Worksheet Framework

Table 4. Five-Phase Design Specification for a ZPD-Based Writing Worksheet

Worksheet phase	Learner evidence	Scaffold and feedback action	Fading criterion and digital option
1. Diagnostic baseline	Independent mini-task, self-rating, or sample paragraph.	Identify current strengths and priority needs; provide a rubric excerpt and one model comparison.	Proceed when the student can identify one strength and one priority need; store baseline in an LMS or shared document.
2. Guided planning	Outline, claim-evidence map, genre checklist, and source-integration plan.	Use prompts, sentence starters, model-text annotations, and teacher examples.	Reduce sentence starters after students can produce a complete plan with checklist support.
3. Drafting with focused feedback	First draft with highlighted target areas.	Provide direct feedback for inaccessible conventions and coded or indirect feedback for accessible targets; limit priorities.	Reduce explicitness only after accurate self-correction across comparable instances; use tracked comments or AWE cues as preliminary evidence.
4. Dialogic revision	Revision memo explaining changes and unresolved questions.	Require self-explanation, peer response, teacher conference, and a revised draft.	Move from teacher explanation to student justification when revision reasoning is accurate and transferable.
5. Fading and transfer	Related new task completed with reduced support.	Retain success criteria and checklist; selectively withdraw models, codes, and sentence starters.	Evaluate independent application; preserve digital revision history for reflection and future goal setting.

The diagnostic baseline phase collects evidence of current independent performance through a short writing task, self-rating, or sample paragraph. Guided planning then uses claim-evidence maps, genre checklists, sentence starters, or annotated model texts to support writers before they produce a full draft. In the drafting phase, WCF is limited to high-priority targets and adjusted in explicitness according to student readiness. Dialogic revision requires students to explain changes, discuss unresolved questions, and submit a revised text. The final transfer phase reduces support in a related but new task to determine whether students can apply the learning beyond the original draft.

This sequence is a synthesis output, not an empirical effectiveness claim. It operationalizes the evidence in a form that can be developed into printed, online, or blended materials. The design specification makes the timing and reduction of support visible, thereby allowing later studies to test feasibility, usability, revision quality, feedback engagement, and transfer more rigorously.

Technology-Mediated Feedback Functions

Technology-related findings identified several functions that can be embedded in the worksheet without changing the pedagogical sequence: storage of annotated model texts, delivery of coded or audio comments, revision-history tracking, organization of peer response, automated diagnostic cues, and online access to rubrics or source-use guidance. These functions can make feedback more timely and traceable, especially when students work across multiple drafts or outside face-to-face class time [18], [19], [20], [22], [23].

However, the focal studies did not support the replacement of pedagogical judgment by technology. Automated information needs to be interpreted in relation to task goals, genre conventions, argumentation, evidence use, and audience. The synthesis therefore positions technology as an evidentiary and communication layer around the worksheet. It can accelerate access to feedback and preserve a record of learning, but teacher and peer mediation remain necessary when students must judge the relevance, accuracy, and rhetorical consequences of a revision.

Discussion

Repositioning Corrective Feedback as a Designed Learning Process

The first contribution of the synthesis is to reposition WCF from an isolated post-draft intervention to a planned learning process. Formative-feedback scholarship has long argued that information becomes educationally significant only when learners can understand it and act on it to close a performance gap [3], [4], [5], [6]. The present framework extends this logic to academic writing by locating feedback at multiple points in the worksheet sequence: before drafting through diagnostic and planning prompts, during drafting through focused guidance, after drafting through dialogic revision, and after revision through transfer. This is especially relevant for EFL writers because the challenges of language, rhetoric, and academic convention often emerge before a complete draft is available for correction.

The results do not imply that teachers should provide more feedback. Instead, they support more deliberate feedback architecture. A worksheet becomes feedback infrastructure when it makes the learning target visible, limits the feedback focus, records learner response, and creates a route from assisted revision to later independent writing. This architecture can reduce the risk that

comments become fragmented, overly comprehensive, or disconnected from students' subsequent decisions. It also creates a practical connection between writing instruction and feedback literacy by requiring students to interpret, justify, and document their use of comments.

Operationalizing the ZPD Through Contingency and Fading

The second contribution is the operationalization of ZPD-oriented mediation in a writing material. The ZPD is frequently invoked to explain scaffolding, but it is less often translated into concrete decisions about when feedback should be explicit, when a model should be provided, and when support should be removed. The proposed framework addresses this issue by linking each phase to learner evidence and a fading criterion. Diagnostic work identifies current independent performance; guided planning supplies structured assistance; feedback intensity is adjusted during drafting; dialogic revision tests the learner's explanation; and transfer assesses more independent application.

This approach avoids treating direct and indirect feedback as mutually exclusive alternatives. Their suitability depends on whether the learner can recognize and solve the writing problem with limited assistance. Direct feedback may be necessary when a convention remains inaccessible, whereas indirect feedback, coded comments, and questions become more appropriate when the student can self-correct or justify a choice with prompt-based support. The key pedagogical principle is not the label of the feedback technique but the contingency of the assistance and the visible withdrawal of support as control develops [24], [25], [26], [27], [28].

Feedback Engagement, Accountability, and Learner Agency

The results also indicate that learner engagement must be treated as part of the feedback process rather than as an optional affective outcome. Students do not engage with feedback solely by receiving it; they engage by noticing, interpreting, evaluating, accepting or rejecting, revising, and reflecting on it. These actions are influenced by motivation, trust, prior knowledge, confidence, and the perceived authority of the feedback source [17], [18], [20], [21], [22]. For this reason, a ZPD-based worksheet should include mechanisms that make engagement visible. Revision memos, self-explanation prompts, response logs, and short conferences can reveal whether a student has revised through understanding, compliance, or confusion.

Accountability should nonetheless remain developmental rather than punitive. The purpose of requiring an explanation is not to force students to accept every comment; it is to encourage them to make and articulate a reasoned revision decision. This is particularly important when students use peer or automated feedback, because suggestions may be incomplete, inaccurate, or poorly aligned with the task's rhetorical purpose. By asking students to evaluate feedback against explicit criteria, the worksheet can cultivate learner agency while preserving the teacher's role as mediator of disciplinary and linguistic judgment.

Technology-Mediated Feedback and the Language-Technology Interface

The framework has implications for technology-mediated writing instruction. Digital platforms can make the five-phase sequence more manageable by storing baseline texts, displaying models, enabling asynchronous feedback, preserving revision histories, and organizing peer dialogue. They may also make feedback more immediate and accessible, particularly in large classes or blended-learning settings. However, the literature cautions against equating computational detection with

meaningful learning. Automated writing feedback can identify patterns, but it cannot independently determine whether a revision improves argumentation, genre fit, source integration, or the writer's intended meaning [18], [19], [23].

Accordingly, the most defensible role for technology is to support evidence, communication, and reflection within a human-guided pedagogy. Teachers can use digital traces to identify recurring needs, while students can use those traces to observe their own revision patterns across tasks. Peer and teacher dialogue remain essential for complex academic decisions. This blended positioning aligns the framework with the language-technology orientation of the journal while avoiding technological determinism: digital tools are valuable when they strengthen contingent mediation, not when they substitute for it.

Theoretical and Practical Contributions

The theoretical contribution of this article lies in joining three bodies of scholarship that are often considered separately: WCF effectiveness, feedback engagement, and ZPD-oriented scaffolding. The framework specifies how these constructs relate within a material design: WCF provides targeted information, feedback engagement provides the learner-response mechanism, and ZPD establishes the principle by which support is adjusted and faded. The resulting five-phase sequence does not claim a new learning theory. Rather, it provides an operational bridge between existing theory and a concrete instructional artifact that can be inspected, adapted, and tested.

Practically, the framework offers a blueprint for lecturers, instructional designers, and researchers developing academic-writing materials. It can be adapted for genres such as argumentative essays, literature reviews, research proposals, and report writing by changing the diagnostic task, genre criteria, model texts, feedback targets, and transfer activity. It also provides a clear basis for future development studies: content experts can validate the phases, teachers can assess feasibility, students can evaluate clarity and usefulness, and intervention studies can examine changes in writing performance, revision quality, engagement, and independent transfer.

CONCLUSION

This structured integrative review concludes that written corrective feedback is most valuable for EFL academic writing when it is planned as developmentally responsive mediation rather than delivered as isolated error correction. The fourteen-study focal corpus indicates that usable feedback requires a transparent focus, an interpretable mode, an opportunity for revision, and mechanisms that engage students in explaining and evaluating their own changes. On this basis, the proposed ZPD-based worksheet architecture organizes learning through five connected phases: diagnostic baseline, guided planning, drafting with focused feedback, dialogic revision, and fading with transfer. The framework contributes a practical specification of how the form, timing, accountability, and withdrawal of corrective feedback can be embedded in printed or digital writing materials; however, its feasibility, usability, and effects on writing quality, feedback engagement, and autonomous transfer must be validated through subsequent research-and-development, experimental, and mixed-methods studies.

LIMITATIONS

This review is limited by its focused integrative design and should therefore not be interpreted as an exhaustive systematic mapping or a meta-analytic estimate of WCF effectiveness. The fourteen focal studies varied substantially in learner populations, educational settings, target features, feedback sources, outcome measures, and methodological designs, which prevents direct generalization to all EFL academic-writing contexts, including Indonesian higher education. The framework also draws on foundational studies of scaffolding and oral corrective feedback to clarify the theoretical logic of contingent mediation; these sources are not treated as direct evidence of written academic outcomes. In addition, the review developed a conceptual material-design specification rather than implementing an intervention, so the proposed worksheet has not yet been evaluated for content validity, practicality, teacher workload, learner accessibility, technological equity, or impact on independent writing transfer. Future research should address these limitations through transparent database-specific search reporting, expert validation, pilot testing, classroom design-based research, and controlled studies across diverse EFL institutions.

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M.F. conceptualized the study, developed the review framework, coordinated the project, and drafted the manuscript. H.H. contributed to the search strategy, screening, and extraction matrix. S.S. contributed to thematic synthesis, interpretation, and critical revision of the results and discussion. U.R. supported reference verification, IEEE formatting, and technical editing. All authors reviewed and approved the final manuscript and accept responsibility for the integrity of the work.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

DECLARATION OF USE OF AI IN SCIENTIFIC WRITING

The authors used ChatGPT and Grammarly during the preparation of this manuscript to assist with language editing, academic clarity, and consistency of expression. All generated or edited content was carefully reviewed, verified, and revised by the authors, who take full responsibility for the final content of the manuscript.

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