A comprehensive Review of Naturalistic Written Corrective feedback (WCF) in L2 Writing Instruction: Pedagogical Insights and Future Research Directions

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ABSTRACT

Witten Corrective Feedback (WCF) has traditionally been a crucial part of L2 writing instruction and has considerably influenced not only language development but also learner outcomes. While there is a significant amount of experimental research regarding WCF, studies that explore the use and perception of WCF in naturalistic classroom settings have been relatively fewer. This review thus attempts to fill this gap by synthesising empirical findings from naturalistic WCF studies within the past decade covering the period from 2010 to 2023 and offering a critical analysis of their implications for pedagogy and research. Four main themes cut across the data: (1) teacher WCF practices, (2) L2 learners' responses and engagement with WCF, (3) teachers and students' beliefs and perceptions, and (4) WCF-related motivation and emotions. The present review outlines the main similarities and differences between these themes, adding to the development of WCF practices. The findings suggest that understanding contextual and learner-specific factors can enhance WCF effectiveness. The review concludes with recommendations for future research, focusing on the complex interaction of contextual variables, learner attributes, and WCF outcomes within the L2 writing classroom.

Keywords: Written Corrective Feedback, Teacher practices, L2 learners' responses and engagement

الملخص

تعتبر المراجعة التصحيحية الكتابية (**WCF**) جزءًا مهمًا تقليديًا من تعليم الكتابة للغة الثانية (**L2**)، وقد أثرت بشكل كبير ليس فقط على تطوير اللغة ولكن أيضًا على نتائج المتعلمين. وعلى الرغم من وجود كمية كبيرة من الأبحاث التجريبية حول المراجعة التصحيحية الكتابية، إلا أن الدراسات التي تستكشف استخدام هذه المراجعة وتصورها في الفصول الدراسية الطبيعية كانت أقل نسبيًا. وبالتالي، تحاول هذه المراجعة سد هذه الفجوة من خلال تلخيص النتائج التجريبية من الدراسات الطبيعية حول المراجعة التصحيحية خلال العقد الماضي، وتقديم تحليل نقدي لآثارها على التدريس والبحث. وهناك أربعة مواضيع رئيسة تتقاطع مع البيانات: (**1**) ممارسات المعلمين في المراجعة التصحيحية، (**2**) استجابات المتعلمين للغة الثانية وتفاعلهم مع المراجعة التصحيحية، (**3**) معتقدات وتصورات المدرسين والمتعلمين، و (**4**) الدوافع والمشاعر المرتبطة المراجعة التصحيحية. تقدم هذه المراجعة الخطوط العريضة للتشابهات والاختلافات الرئيسية بين هذه المواضيع، مما يساهم في تطوير ممارسات المراجعة التصحيحية. وتختتم الدراسة بتوصيات للبحوث المستقبلية، مع التركيز على التفاعل المعقد بين المتغيرات السياقية وخصائص المتعلمين ونتائج المراجعة التصحيحية داخل فصول الكتابة للغة الثانية.

الكلمات المفتاحية: المراجعة التصحيحية الكتابية (**WCF**) ، ممارسات المعلمين ، استجابات المتعلمين للغة الثانية

Introduction

Written corrective feedback is an instructional method used to address students' linguistic errors in writing; the goal is to improve both language accuracy and overall writing skill. Ferris (2012) and Han and Hyland (2019) describe that this process usually involves teachers annotating, commenting on, or providing coded responses to students' written output in an effort to highlight and correct errors. As a core feature of L2 writing instruction, WCF has become one of the most extensively researched areas in second language acquisition (SLA) due to its potential to support language development, enhance writing quality, and foster learner autonomy (Bitchener & Storch, 2016; Storch, 2018; Van Beuningen, 2010). Furthermore, WCF responds to the pressing requirement for precision in written expression, thereby constituting an essential component for students striving for enhanced competence in academic or professional environments (Ellis, 2009; Ferris, 2011).

Investigations into Written Corrective Feedback (WCF) have advanced significantly in the last twenty years, largely owing to empirical studies that assess the effectiveness of various feedback modalities (such as direct and indirect feedback) or the quantity of feedback delivered (including focused and unfocused feedback) within regulated environments (Li, 2010; Mao & Crosthwaite, 2019). Such studies have largely measured the short-term linguistic gain from WCF as a function of the correct production of corrected forms in subsequent writing tasks. Despite their contribution to the understanding of feedback outcomes, these studies have encountered criticism pertaining to their limited ecological validity, as they often fail to account for the complex dynamics inherent in classroom settings where Written Corrective Feedback (WCF) engages with various contextual and emotional elements (Lee, 2019; Storch, 2018; Loewen & Plonsky, 2017). Furthermore, an overreliance on experimental methods may result in findings that create difficulties regarding their implementation in real-world classroom environments, thereby limiting their educational relevance (Hyland & Hyland, 2019; Zhang, 2021).

In contrast, naturalistic research into WCF explores the use and receipt of feedback in actual classroom environments, enabling more nuanced understanding of its role in promoting L2 writing development (Crosthwaite et al., 2022; Lee, 2019). This kind of research makes use of descriptive and observational methods to investigate how classroom contexts and the beliefs of both teachers and students, sociocultural contexts, and institutional policies shape feedback practices (Mao & Lee, 2020; Hyland, 2010). This type of study aims to elucidate the *how* and *why* aspects of written corrective feedback (WCF) delivery, concentrating on the justifications teachers provide for selecting particular feedback techniques and the diverse reactions of students to these techniques as they evolve over time (Ellis, 2010; Han & Hyland, 2015). By capturing the interaction between feedback practices and real-world variables, naturalistic studies can offer actionable insights

into the contextual factors that facilitate or hinder the effectiveness of WCF in promoting L2 development (Storch, 2018; Yu et al., 2021).

The debate surrounding the efficacy and implementation of WCF has intensified since Truscott's (1996) controversial argument against grammar correction in L2 writing classes, where he claimed that corrective feedback is not only ineffective but also potentially harmful to L2 development. This led to an explosion of research defending the pedagogical benefits of WCF, in order to clarify its effects on L2 writing accuracy and its relationship to the process of language acquisition. (Ferris, 1999; Bitchener & Knoch, 2008). The existence of these contrasting viewpoints has resulted in a division within the academic literature concerning the emphasis of experimental research, frequently prioritizing immediate improvements in grammatical precision as opposed to the naturalistic studies' focus on prolonged learner involvement and contextual flexibility (Lee, 2017; Mao & Lee, 2020).

Given the huge importance of WCF to the writing development of L2 learners, an in-depth review is warranted to integrate naturalistic research and present a synthesised view about its pedagogical implications. Such a synthesis will also be able to bridge the gap between theoretical positions and pedagogical practice, hence leading teachers on how to adjust their feedback practices to accommodate diverse learner needs and contextual constraints (Han, 2017; Yu et al., 2020). This review is designed to meet this need by systematically analysing naturalistic WCF studies, with respect to four main areas of interest: (1) teacher WCF practices, (2) learner responses and engagement, (3) teachers and students' beliefs and perceptions, and (4) WCF-related motivation and emotions. This will allow the work to provide an additional contribution to existing literature concerning the operation of WCF in authentic classroom contexts, therefore providing recommendations for evidence-informed effective L2 writing pedagogy.

The main objective of this review is to fill a significant gap in the existing literature by focusing on naturalistic writing corrective feedback research, which is still relatively rare compared to experimental studies. Experimental approaches do certainly provide significant insights into specific variables and controlled treatments. However, they often cannot capture the complex interactions involved in real instructional settings (Storch, 2018; Li, 2018). This review thus attempts to organise results of those studies that have foregrounded the complex and context-dependent nature of WCF and explored how various feedback approaches would be shaped by classroom management, cultural expectations, teacher beliefs, and student participation (Busse, 2013; Guénette, 2013).

Moreover, this review intends to analyse the theoretical constructs that support naturalistic WCF research, including sociocultural theory (Lantolf & Thorne, 2006), complexity theory (Larsen-Freeman, 2020), and ecological perspectives (van Lier, 2004). These constructs serve as analytical frameworks for comprehending the interrelations among feedback practices, learner reactions, and contextual influences, consequently providing a more nuanced understanding of the results (Han & Hyland, 2019; Saeli & Rahmati, 2022). In this respect, this review discloses common themes, gaps, and emerging trends in the WCF naturalistic studies that give direction to the future investigation.

Methodology

The review was conducted according to established guidelines for combining qualitative, quantitative, and mixed-methods studies to ensure maximum transparency, robustness, and reproducibility of the methodological process (Gough et al., 2017; Siddaway et al., 2019). The Preferred Reporting Items for Systematic review and Meta-Analyses (PRISMA) guidelines provided the methodological framework for this review, as adapted for reporting systematic reviews and meta-analyses (Page et al., 2021), with necessary adjustments to suit the nature of naturalistic studies. The adaptions included a broad scope for inclusion criteria to capture studies that

examine real classroom interactions without manipulation and an emphasis on qualitative assessment to maintain methodological relevance in classroom settings. This involved several steps: (1) developing the inclusion and exclusion criteria; (2) conducting an extensive search strategy; (3) data extraction; and (4) quality assessment of the included studies.

Inclusion and Exclusion Criteria

The studies selected for review had to satisfy the following conditions of inclusion: (1) focus on WCF practices in naturalistic classroom settings, i.e., real educational contexts without any type of experimental manipulation; (2) involve learners of a second or foreign language, such as ESL or EFL; (3) report on key research questions regarding WCF provision, reception, or engagement; (4) be published in an academic peer-reviewed journal; and (5) be written in English.

This was followed by setting the temporal framework from 2010 to 2023 to be able to capture recent developments and trends in WCF research. Such studies were excluded if they met any of the following criteria: (1) conducted in controlled laboratory settings; (2) reliant solely on peer or automated feedback; (3) limited to theoretical models or meta-analyses that did not contain original empirical evidence; and (4) included unpublished materials such as dissertations, working papers, or conference presentations.

Search Strategy

The major academic databases, such as NUsearch-University of Nottingham Library, Onesearch- Nottingham Trent University Library, Web of Science, Scopus, ERIC, and LLBA, were used for conducting a comprehensive search strategy for this review. The keywords and phrases combined for WCF, and naturalistic contexts included terms such as *written corrective feedback, error correction, second language writing, classroom practices, and naturalistic research.* Boolean operations were therefore, used to maximise the search in order to ensure that the literature regarding the topic is

comprehensively retrieved. The preliminary search resulted in 235 studies in total. In order not to miss any important articles, the search was supplemented by a manual check of the reference lists of the selected studies and targeted searches in key journals such as the Journal of Second Language Writing, Assessing Writing, Language Teaching Research, and System (Bitchener & Storch 2016; Mao & Lee 2020).

Identification and Screening of Studies

A multi-phased selection procedure was performed: (1) title and abstract screening were initially screened based on specific inclusion criteria, such as studies focusing on WCF practices within authentic classroom settings, involving ESL/EFL learners, and addressing WFC implementation, learner engagement, and teacher-student beliefs and attitude towards feedback. (2) full-text review, and (3) verification of eligibility through the inclusion criteria.

The titles and abstracts were screened independently by two researchers to eliminate irrelevant studies; 105 articles remained after that process. Full reviews were conducted to identify both the methodological strength and relevance to WCF in terms of naturalistic classroom settings. In other words, screening of studies included

Disagreements about which studies to include were resolved by discussion and, where required, by input from a third reviewer. This process of screening led eventually to the inclusion of 50 empirical studies, which gave rich insights into WCF practices, learner responses, and contextual aspects that influence how WCF is effective.

Data Abstraction

Data extraction was informed by a pre-developed coding framework iteratively updated with the emerging themes and categories identified during the review. The variables within this framework included author(s), year, context of study, design of the

research paper (qualitative, quantitative, or mixed-methods), participants-participants' details such as proficiency level, age group-type and scope of WCF, research focus-teachers' practices, learners' engagement, beliefs, or emotions-key findings. Data were analysed using a database, which enabled comparisons between cases to identify themes (Mao & Lee 2020; Han & Hyland 2019). This systematic schematic framework facilitated identifying regular patterns and novel insights across studies, hence guaranteeing the comprehensiveness of the synthesis in view of the extant literature.

Quality Appraisal

A quality appraisal of the included studies, to be used for this review, was performed using the Mixed Methods Appraisal Tool (MMAT), as described by Hong et al. (2018), since this is one of the most commonly used instruments in qualitative, quantitative, and mixed-methods studies. Each study was rated against certain pre-specified criteria, including methodological coherence, sufficiency of data collection and analysis, and the congruence between the research question(s) and the stated outcomes. It is at this stage that the studies which did not attain or exceed the minimum ranking of quality were excluded. Only studies rated as either high or of moderate methodological quality passed through this final review because the findings synthesised needed to have emerged from rigorous and creditworthy research.

Analysis and Synthesis of Data

Data analysis was implemented through a three-tier approach: namely, (1) thematic coding, (2) within-study analysis, and (3) cross-case synthesis. Thematic coding was done inductively, thus allowing categories and themes to emerge naturally from the data themselves (Braun & Clarke, 2006). The actual analysis within this study predominantly focused on an investigation of how individual studies addressed WCF practices, learner engagement, and contextual variables. Cross-study synthesis was done through the constant comparative method to allow for the identification of

similarities, differences, and unique contributions. This synthesis model has thus allowed for an in-depth understanding of WCF in naturalistic classroom settings and emphasises important themes relative to teacher beliefs and practices, learner responses and engagement, and contextual variables that influence WCF (Lee, 2019; Zhang, 2022).

Theoretical Perspectives in Naturalistic WCF Research

Theoretical underpinnings for naturalistic WCF studies take many forms, reflecting the intricacy of L2 writing and feedback mechanisms themselves, together with contextual factors. Explicitly identified theoretical underpinnings form the basis for work in only a minority of the 50 reviewed studies, which suggests a need for a stronger theoretical underpinning in the field. These include complexity theory, sociocultural theory, ecological perspectives, and several others that enlighten the knowledge of individual learner differences and teacher cognition.

Complexity Theory
Another highly discussed topic by Larsen-Freeman (2020) is complexity theory, which tends to explain the complexity of WCF as being part of a dynamic and interrelated system that keeps changing because of interaction between a variety of elements, including teachers' beliefs, students' characteristics, classroom ecology, and institutional standards. This theoretical framework highlights the non-linear characteristics of language acquisition, and the emergent attributes associated with WCF methodologies (Larsen-Freeman, 2020; Chen, 2022). For instance, Lee et al. (2021b) have used the theory of complexity to trace teachers' feedback practices with regard to time and have demonstrated how the decision-making processes of educators are interrelated and changed due to changing classroom contexts, student responses, and institutional expectations from outside. Similarly, Chen (2022) has also applied complexity theory to investigate how teachers' beliefs interact with the pragmatic classroom realities, which then

ultimately demonstrate how small changes in how feedback is given may have huge effects on both student engagement and student outcomes. Therefore, complexity theory provides a sound basis for investigating the adaptive and context-dependent nature of WCF in real educational settings.

Sociocultural Framework

Sociocultural theory, rooted in Vygotskian principles (Vygotsky, 1978), views learning as a socially mediated process, emphasising the importance of interaction, scaffolding, and collaborative dialogue in language development. This theoretical approach positions WCF not merely as a corrective tool but as an integral part of dialogic mediation between teachers and learners. In this framework, WCF is regarded as a type of *scaffolded support* that proves to be most beneficial when customised to align with the learner's existing developmental stage, thereby offering the essential aid required to elevate them to advanced levels of competence (Han & Hyland, 2015; Saeli & Rahmati, 2022).

Following sociocultural theory, the function of teachers' written feedback and follow-up oral discussions as mediating tools promoting more extensive cognitive engagement and text revision has been explored in research conducted by Han and Hyland (2015) and also Saeli and Rahmati (2022). The approach, therefore, takes into consideration the bidirectional nature of feedback and demonstrates how learners actively engage in and reconstruct the feedback they receive to facilitate knowledge co-construction rather than passively absorbing the feedback.

Ecological Perspectives

The ecological perspectives represented in van Lier's article of 2004 draw attention to an organic relationship between personal agency and environmental opportunities, situating WCF within an extensive ecology covering classroom practices and social interactions. From an ecological approach, it looks into precisely

how the contextual elements-classroom ecologies, peer interactions, and institutional policies-affect both giving and receiving of WCF. In the light of ecological perspectives, Han (2017) explored the extent to which Chinese EFL learners' actual use of feedback was influenced by classroom culture and teacher expectations. The findings indicated that not only was feedback use by learners influenced by the feedback given, but also by their perceptions of whether this was relevant and useful or not in the classroom context. Drawing on the above framework, Lee (2019) explores how Hong Kong's secondary school teachers navigate tensions between competing curricula and parental expectations. He contends that their methods of providing feedback represented context-bound responses to a multilayered system of situational opportunities and constraints.

Competing theoretical frameworks

Other alternative theoretical frameworks have also been used in studying naturalistic WCF to explain particular aspects of the WCF practices, besides the theories already identified:

Activity Theory: This conceptual framework has been used to explore the interaction between personal and communal activity systems when approaching feedback (Engeström 1999; Liu et al., 2022). It focuses on the dynamic relationship between the teacher (subject), the feedback practice (object), and the mediational tools (e.g., rubrics, written comments) within the larger community of practice (Liu et al., 2022). They could then demonstrate how the teachers' feedback strategies were shaped by their respective roles within the classroom and the expectations placed on them by the school. It presumes assessment practices are negotiated and established within specific institutional and social contexts.

Reflective practice perspective: Yu (2021) investigated how feedback acts as a driver of educators' professional development in light of reflective practice. The perspective invites educators to adopt reflective thinking on methods of giving feedback, together with considerations of consequences for student learning, and

creates a cycle for continuous improvement (Schön, 1983; Yu, 2021). This viewpoint posits that the evolution of the educator is a cyclical process, and by engaging with and reflecting on WCF, the teacher can enhance his pedagogical convictions and teaching strategies.

Theories of motivation and self-regulation, including Dweck's (2000), conceptualisation of intelligence mindsets, have been utilised in examining ways in which learners' motivational orientations affect their reactions to WCF. For instance, Papi et al. (2020) found that when a growth mindset was adopted, learners were more likely to embrace WCF for its learning potential, leading to better uptake of feedback and more persistence in revision attempts. Conversely, a fixed mindset led to learners viewing WCF as threatening to their competence, thereby undermining engagement and facilitating avoidance.

The Teacher Cognition Theory functions as a theoretical framework that explores the interactions among teachers' beliefs, knowledge, and their related practices pertaining to the provision of Written Corrective Feedback (WCF) (Borg, 2003). Wei and Cao (2020) applied this theory to analyse the inconsistency between educators' stated beliefs about focused WCF and their actual practices within the classroom. The results of this study indicated that the external factors of institutional constraints and examination pressures often coerced a compromise in the theoretically sound WCF methodologies.

Limitations and Constraints in Theoretical Implementation Despite the diversity of theoretical orientations, naturalistic WCF research studies often have no clear stated theoretical basis or are vague in their theoretical orientation. This implicitness makes it difficult to systematically analyse their contributions to the theory-building effort in L2 writing research. The identified gap underlines the necessity of theory-driven research with an explicit articulation of its theoretical underpinnings and alignment of these underpinnings with the design of a study and data interpretation (VanPatten et al.,

2020). Hence, additional studies are required that integrate various theoretical approaches in order to capture more acutely the complexity of WCF practices, learner engagement, and contextual influences.

Key Concepts of WCF Naturalistic Investigation

WCF Teacher Practices

In general, practices of Teacher Written Corrective Feedback are very varied depending on the educational context in which these are carried out. They mainly distinguish between EFL and ESL contexts. In EFL contexts, teachers give much more extensive feedback covering all errors identified. This tendency is influenced, to a great extent, by external factors such as high stakes testing and the expectations from parents, who have often highlighted accuracy and thorough error correction (Lee, 2011; Zhang, 2022). For example, high-stakes examination preparation has led the educational systems in mainland China and Hong Kong to mandate instructors even to correct linguistic errors due to the labour-intensive processes involved in feedback (Cheng & Zhang, 2021). Feedback often involves everything, from grammatical, lexical, and syntactic errors, since it is seen as a means to achieve the needs of an institution and expectation by learners.

Conversely, English as a Second Language (ESL) instructors, especially within Western educational environments, frequently employ a more targeted strategy for Written Corrective Feedback (WCF), emphasizing errors that substantially hinder communication or particular aspects highlighted during the lesson. This targeted feedback approach allows educators to prioritize significant issues while ensuring that students are not overwhelmed by an excessive number of corrections at once (Ene & Kosobucki, 2016; McMartin-Miller, 2014). This approach is based on the pedagogical tenet that an overabundance of corrections may obstruct learners or limit their ability to integrate crucial feedback, particularly within the frameworks of communicative language

teaching (Ferris, 2011). Recent research has highlighted an increasing emphasis on focused WCF, which specifically targets particular kinds of errors, such as consistency with tense and agreement between subject and verb, to ease the burden on learners' cognition and maximize the likelihood that feedback will be retained and acted upon (Lee et al., 2021b). Focused WCF requires instructors to choose a limited set of error categories that are targeted in each feedback cycle; this approach again coincides with recent language acquisition theories that stress the need for manageable and progressive learning of language (Bitchener & Ferris 2012). However, how this focused WCF is, in fact, delivered depends on many variables.

These are influenced by the views of teachers on the role of WCF in language learning and by their own work-related obligations and levels of institutional support. Mak (2019) and Mao and Crosthwaite (2019) pointed out that all these factors combine to impact teachers' literal practice of this far more targeted approach. For example, teachers with heavy teaching loads or working in institutions where examination results are stressed may find it difficult to adopt focused WCF, despite its potential benefits for students. In addition, WCF practices are also shaped by cultural factors. For instance, in some EFL contexts, teachers are bound by tradition to the expectations that they have to correct all errors to show thoroughness and accountability, even when it is pedagogically advantageous not to do so (Lee, 2019). These challenges further combine with the institutional policies and high-stakes nature of language assessments present in such settings. Therefore, certain meaningful professional development and institutional reforms could be needed in supporting teachers to adopt more learner-centred WCF practices (Cheng & Zhang, 2021).

L2 Learner Responses and Engagement

Learners' responses to WCF are affected by many factors, including linguistic competence, motivation, personal beliefs about learning,

and the cognitive strategies they employ when revising. More proficient learners tend to interact more effectively with indirect feedback because they possess the requisite metalinguistic knowledge and self-regulatory skills necessary for decoding and using such feedback effectively (Zhang & Hyland, 2018). Learners with advanced proficiency are generally more skilled in interpreting metalinguistic clarifications or error signals, effectively employing the feedback received to implement significant modifications in their writing (Pearson, 2022a; Yu et al., 2020). In opposition, learners with lower proficiency, who may lack the requisite linguistic abilities and metacognitive strategies, often struggle to understand implicit feedback without supplementary explicit guidance (Rahimi, 2015). Such students may, therefore, learn better through immediate feedback, whereby the teacher supplies the correct form of an error for them to focus on comprehending and internalising such corrections.

Contemporary studies have increasingly adopted a tripartite model in exploring learner engagement with WCF, assessing it along three dimensions: behavioural, cognitive, and affective (Fredricks et al., 2004; Zhang, 2022). Behavioural engagement refers to how actively students respond to feedback, such as by revising their work based on teacher corrections or participating in feedback discussions (Ellis, 2010; Ferris, 2011). Cognitive engagement refers to the extent to which learners deploy mental processes in response to feedback, including the ability to assess its relevance, relate it to their prior knowledge of linguistic conventions, and to make independent adjustments in future writing (Han & Hyland, 2015). Affective engagement pertains to the emotional reactions that learners undergo in response to feedback, which can vary from feelings of frustration and anxiety to sensations of satisfaction and motivation (Han & Hyland, 2019; Zhang & Hyland, 2018).

One striking outcome of the naturalistic research is that learners' WCF use is not a point-in-time entity but rather a developing process. The level of engagement may vary according to various

factors, such as the nature and features of the feedback given, the learner's stage of development, and changes in the classroom or institutional context in which they find themselves (Shi, 2021). For example, students resistant to corrective feedback at first may gradually become more receptive to it as they develop greater linguistic awareness and feel their writing improve (Han, 2017). Similarly, the supportive atmosphere that is created by discussions among colleagues and teachers can have a beneficial impact on both cognitive and emotional involvement (Zheng & Yu, 2018). This highlights the necessity of offering ongoing opportunities for students to contemplate and implement feedback, as engagement tends to intensify with prolonged experiences of receiving feedback (Tian & Zhou, 2020; Zhang, 2022).

Stakeholders' Beliefs and Perceptions

The viewpoints regarding written corrective feedback (WCF) among students and educators exhibit a stark divergence, often standing in clear opposition to one another. Research indicates that, on the whole, students tend to prefer detailed feedback, perceiving meticulous corrections as beneficial for enhancing their accuracy and overall language proficiency (Yu et al., 2020; Cheng & Zhang, 2021). This is certainly the case in EFL contexts where students may leave the detection and correction of all errors in writing to their teachers because high-stakes language assessment is so pervasive (Lee, 2011). Teachers, in turn, particularly those in ESL settings, frequently see comprehensive feedback as an impracticable strategy and even one that would be counterproductive since it can overwhelm students and prevent them from being able to focus their efforts on the most important language issues (Ferris, 2011). Teachers may encounter restrictions due to time constraints and substantial workloads, which may compel them to offer more selective feedback in contrast to students' preferences (Chen, 2022).

These discrepancies between convictions and practice form perhaps the most common theme in the academic discussion of

WCF. Teachers often express their intentions to provide focused feedback to encourage learner autonomy; however, they commonly use heavy error correction due to institutional pressures or student requests/demand (Mao & Lee, 2020). Instructors may also adjust their methods of feedback due to the unique needs of the learners; however, such flexibility is sometimes not possible with the rigid structures of school curricula or due to the demand for standardised tests (Montgomery & Baker, 2007). Grasping these distinctions is essential to harmonise educational methodologies with student anticipations and to promote more effective dialogue concerning the functions and objectives of feedback within the context of language acquisition (Cheng & Zhang, 2021).

Motivation and Affect

The important dimensions of WCF have come to be increasingly identified as key to understanding students' and teachers' perceptions and responses to feedback. WCF can elicit a range of emotional responses in learners, from feelings of anxiety and frustration to motivation and satisfaction, depending on how feedback is delivered and perceived (Han & Hyland, 2019). The negative ones, such as anxiety or frustration, may appear when a large quantity of feedback is perceived or viewed as overly critical. Extensive feedback bringing to light a high number of errors amplifies this possibility (Papi et al., 2020). On the contrary, a positive emotional response in the form of satisfaction and motivation is more likely when feedback is perceived as constructive and supportive, thus encouraging learners to engage actively in revision (Zhang, 2022). For that reason, intensive and individualistic feedback is likely to be emotionally draining for educators. Teachers usually spend much time and energy writing constructive feedback, which most of the time goes unnoticed or underutilised by the learners (Yu et al., 2020).

This emotional commitment can cause a burnout effect or professional demoralization, especially where the educators feel

unsupported by institutional structures or have issues regarding heavy class loads (Zhang, 2022). The provision of institutional support, including reduced workloads, opportunities for professional development, and clear feedback policies, can help mitigate negative feelings and create a sense in both teachers and students that the feedback system is a positive and helpful part of language learning (Yu et al., 2020).

Methodological Approaches

Results of the analysis used mainly qualitative research methods that showed the nature of WCF was complex and context-dependent, emerging from authentic interactions in classrooms by Han (2017) and Zheng & Yu (2018). Qualitative research methods, such as case studies, ethnographic observations, and narrative inquiries, have been particularly useful for exploring the complex processes of WCF, including teacher decision-making, student responses, and sociocultural contexts (Mao & Lee, 2020; Hyland & Hyland, 2019). For example, case studies can go in-depth into the complexities of methods of providing feedback and student responses; they often adopt multiple types of data, including interviews with educators and learners, observations in classrooms, and the study of students' writings (Chen, 2022; Zhang & Hyland, 2018). Ethnographic approaches add even greater depth by situating WCF studies within the broader socio-cultural and institutional environments that shape teaching itself (Lee, 2016; Saeli & Rahmati, 2022).

In current research, the use of mixed-methods strategies has become increasingly favored due to their capacity to combine qualitative and quantitative results, thus improving the reliability and thoroughness of research findings (Cheng & Zhang, 2021; Wei & Cao, 2020). Mixed-methods frameworks typically encompass surveys aimed at identifying wider trends in beliefs or practices, alongside detailed interviews or observational data that serve to contextualise and elucidate these trends (Liu et al., 2022). This methodological integration is particularly valuable for exploring

the nuances of teacher-student interactions, stakeholder beliefs, and the impact of contextual variables on feedback processes (Crosthwaite et al., 2022). For instance, surveys can identify general trends in teacher beliefs about WCF, while qualitative interviews can delve into the underlying reasons for these beliefs and their translation into classroom practices (Yu et al., 2020; Han, 2017).

Despite the strengths that qualitative and mixed-methods research bring to elucidating the contextualized and dynamic nature of WCF, quantitative-only studies are still limited. Large-scale quantitative methodologies, such as experimental designs and surveys, face difficulties in naturalistic settings due to issues with variable control and ethics pertaining to manipulating feedback within classroom contexts (Loewen & Plonsky, 2016). Therefore, most quantitative studies in this area focus on measuring the accuracy of students' revisions or the occurrence of error correction, usually using pre- and post-tests to measure the effectiveness of feedback longitudinally (Li, 2018; Kang & Han, 2015). While these studies contribute to a better understanding of WCF efficacy, they often lack ecological validity because they do not take into account the complex interplay of factors that affect how feedback is taken up and learning outcomes emerge in real classroom settings (Lee 2019; Storch 2018).

The growing number of mixed-methods studies suggests recognition of limitations inherent in single-method approaches and reinforces the need for methodological diversity in WCF research (Siddaway et al., 2019; Timulak & Creaner, 2023). Future research efforts may benefit from the inclusion of more innovative research methods, such as action research in which teachers become co-researchers or longitudinal research that tracks changes in WCF practices and student engagement over extended periods (Han & Hyland, 2019; Lee et al., 2021b). This would further our understanding not only of how WCF operates in different educational settings but also provide stronger data to inform pedagogical decisions.

Implications for Pedagogy

The findings from naturalistic WCF research underscore the need for a flexible and adaptive approach to feedback provision, one that is responsive to individual learner needs and the specific constraints of the educational context (Lee, 2019; Carless & Boud, 2018). Rather than adopting a one-size-fits-all strategy, teachers should consider a range of WCF options—such as direct, indirect, and metalinguistic feedback—and choose the most appropriate type based on learners' language proficiency, cognitive capacities, and affective states (Sheen, 2011; Mao & Crosthwaite, 2019). For example, lower-proficiency learners may benefit more from direct corrections and explicit explanations, whereas higher-proficiency learners might find indirect feedback that prompts self-correction more engaging and effective (Ferris et al., 2013; Yu et al., 2021a).

Bridging the gap between teachers' beliefs and actual practices is crucial for maximising the pedagogical potential of WCF. Many teachers have beliefs about the importance of individualized and contextualized feedback, but often rely on traditional, thorough error correction practices due to contextual constraints such as large class sizes, heavy workloads, and institutional pressures (Mao & Lee 2020; Lee 2016). Professional development programs that promote reflective practice and offer opportunities for teachers to experiment with innovative feedback strategies—such as focused WCF or technology-mediated feedback—can help align teacher beliefs with pedagogical practices (Mak, 2019; Hyland & Hyland, 2019).

Moreover, the development of both teacher and student feedback literacy is essential for enhancing the effectiveness of WCF (Carless & Boud, 2018; Lee, 2019). Teacher feedback literacy consists of not only competence in giving constructive feedback but also of creating a classroom environment where feedback is viewed as a collaborative and discursive activity rather than as a monological evaluation of student performance only (Zheng & Yu, 2018; Han,

2017). Literacy concerning student feedback would involve understanding the aims of the feedback, developing the competencies to make sense of the feedback, and devising ways that student feedback can be used to benefit learning from the process (Zhang & Mao, 2023; Yu et al., 2021b). The teachers can develop the student feedback literacy through explicit teaching about ways to engage with feedback, modelling good revision practices, and encouraging peer feedback endeavours (Lee, 2019; Carless & Boud, 2018).

Future Research Directions

Subsequent investigations ought to concentrate on examining the prolonged evolution of learner engagement with Written Corrective Feedback (WCF) as well as the interaction between personal and contextual elements (Shi, 2021; Zhang, 2022). There exists a necessity for longitudinal studies that monitor variations in learner engagement, motivation, and emotional responses over an extended period to enhance comprehension of how WCF impacts writing progression over time (Zhang & Hyland, 2018; Mao & Lee, 2023). Such studies should consider how variables such as language proficiency, learning goals, and classroom dynamics interact to shape learner responses to feedback (Han & Hyland, 2019; Pearson, 2022).

Furthermore, comparison across contexts allows for the identification of how cultural and institutional variables influence WCF practices and their consequences (Mao & Lee, 2020; Li et al., 2022). Research into WCF practices in various educational settings, such as those comparing secondary to tertiary education or EFL to ESL contexts, may point to the generalization of findings and stress context-specific adaptations that could be made to ensure feedback is provided to the best effect (Storch, 2018; Yu et al., 2020). Comparative studies can also reveal how different educational traditions, such as exam-oriented vs. communicative approaches, influence both teacher practices and learner responses to WCF (Lee, 2016; Cheng & Zhang, 2021). Besides, the future research elaborates

on how technology could further impact WCF practices, suggesting that emerging tools such as automated feedback systems and AI-enhanced feedback have potential to transform WCF in L2 writing by offering scalable, personalising feedback. Future research should assess how these technologies can work in tandem with traditional WCF methods to maximise engagement, responsiveness, and ultimately, learner outcomes.

In conclusion, subsequent investigations ought to examine the incorporation of new technologies, including automated feedback mechanisms and artificial intelligence, within naturalistic writing correction feedback (WCF) environments (Li et al., 2022; Mohsen, 2022). Although experimental studies have initiated an exploration into the capabilities of these technologies for delivering prompt and personalized feedback, their influence on student engagement and learning outcomes in real-world classroom contexts remains insufficiently examined (Lv et al., 2021; Mao & Crosthwaite, 2019). Understanding how technology-mediated feedback may complement traditional WCF practices and support teacher-student interaction provides a promising avenue for widening the scope and impact of WCF research.

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