Written Corrective Feedback at University: Detection of Errors by Teachers and Impact of Different Forms of Feedback

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Abstract

This study explores the written corrective feedback provided by two university teachers in the academic texts written by their students. Specifically, it focuses on the relationship established between the linguistic and discursive errors identified by the teachers, the forms of feedback provided (direct, indirect, metalinguistic and metadiscursive) and the impact of feedback on a second version of the texts revised by the students. A total of 142 texts (two versions of 71 texts) submitted by two groups of students taking a primary education degree at two Spanish universities (71 students) were analyzed. These were coded according to the errors detected, the form of feedback provided, and the way in which they incorporated the feedback into a second version. The results show that the errors detected in the highest numbers by the teachers were discursive, followed by morpho-syntactic and spelling mistakes. The most common feedback was indirect, followed by metalinguistic, although the two teachers were found to take distinct approaches. Regarding its impact, the students incorporated a high percentage (80%) of the feedback provided.

Résumé

Cette étude explore la rétroaction corrective écrite fournie par deux professeurs d'université dans des textes académiques rédigés par leurs étudiants. Plus précisément, elle se concentre sur la relation établie entre les erreurs linguistiques et discursives identifiées par les enseignants, les formes de rétroaction fournies (directes, indirectes, métalinguistiques et métadiscursives) et l'impact de la rétroaction sur une deuxième version des textes révisés par les étudiants. Au total, 142 textes (deux versions de 71 textes) soumis par deux groupes d'étudiants suivant un programme d'enseignement primaire dans deux universités espagnoles (71 étudiants) ont été analysés. Ils ont été codés en fonction des erreurs détectées, de la forme de rétroaction fournie et de la manière dont les étudiants ont incorporé la rétroaction dans une deuxième version. Les résultats montrent que les erreurs détectées en plus grand nombre par les enseignants sont les erreurs discursives, suivies des erreurs morphosyntaxiques et orthographiques. La forme de rétroaction la plus fréquente était indirecte, suivie par la rétroaction métalinguistique, bien que les deux enseignants aient adopté des approches distinctes. En ce qui concerne l'impact, les étudiants ont intégré un pourcentage élevé (80 %) de la rétroaction fournie.

Written Corrective Feedback at University: Detection of Errors by Teachers and Impact of Different Forms of Feedback

Introduction

This study investigates the written corrective feedback provided by university teachers when correcting texts produced by students taking a primary education degree at two universities in Spain. It focuses on the study of the type of errors committed by students in written language (in Catalan), and it examines the impact of the feedback provided by teachers when it came to improving texts during the writing process. The focus on texts written by students taking an education degree is justified by the importance of them needing good writing skills as future teachers, when they will have to teach their own students to write competently and effectively, and because they constitute a group of students who display significant weaknesses in written composition (Brion et al., 2017; Brunat et al., 2009; Gallego et al., 2013; Mateo-Girona et al., 2023; Neira-Piñeiro et al., 2018; Segovia et al., 2013).

In the field of foreign and additional language teaching, the research on written corrective feedback has focused on grammatical aspects and developed a specific approach to the different types of feedback in order to investigate their frequency and effectiveness (see reviews of the literature in Ferris, 2023; Ferris & Hedgcock, 2023; Ferris & Kurzer, 2019; Karim & Nassaji, 2019; Nassaji & Kartchava, 2021; Sun & Lan, 2023). Specifically, it has spotlighted three ways of providing written corrective feedback: *direct*, i.e. giving the complete solutions to errors in a text; *indirect*, where errors are indicated by means of some mark or symbol, but with no solution; and *metalinguistic*, which involves indicating some rule or clue that explains the error, also without giving the solution.

The studies on direct, indirect and metalinguistic feedback do not always define each type of feedback in the same way or in sufficient detail, which can make the interpretation of results difficult. In particular, several problems persist in the definition of the types of feedback. Metalinguistic feedback is considered by some authors to be a subtype of indirect feedback since there is no explicit correction of errors. Code-based feedback (for example, VOC for “vocabulary”, VT for “verb tense”, etc.) is considered to be a form of indirect feedback because it does not contain error correction. Other researchers view indirect feedback as a form of metalinguistic feedback since it is considered to provide information that goes beyond indicating errors, and provides information – no matter how little – deemed metalinguistic (see, for discussion, Bitchener & Storch, 2016; Bonilla, 2020; Comajoan-Colomé & Salguero, 2024; Ferris & Kurzer, 2019; Karim & Nassaji, 2019; Lira-Gonzales & Nassaji, 2023). In this article, the feedback indicators associated with codes or symbols were considered indirect feedback (see the Methodology section: data coding).

Despite the growing number of meta-analyses and studies that explore the effectiveness of direct and indirect feedback, particularly as regards writing in second-language learning, there are no conclusive results on the usefulness of one or the other approach, since a number of variables interact, such as the students' level of competence, the learning context (foreign or second language), focused or unfocused correction, the type of error, and motivation (Brown et al., 2023; Lira-Gonzales & Nassaji, 2020, 2023). Although indirect feedback may be more beneficial than direct feedback because it prompts students to reflect on their errors and develop autonomous strategies, research comparing the two forms of feedback has not produced definitive results (Bitchener & Ferris, 2012; Ferris & Kurzer, 2019; Li & Vuono, 2019). For

example, in the case of beginner learners of an additional language, they cannot be expected to encounter solutions without explicit prior help from the teacher because they do not as yet know enough to do so on their own.

Written corrective feedback may be more effective in second or additional language learning contexts than in first language learning because second or additional language learners tend to pay more attention to feedback and grammatical aspects than students working on their native language, who focus more on the writing process (Ferris & Kurzer, 2019; Kang & Han, 2015; Li & Vuono, 2019). Despite the inconclusive results, various researchers have come up with some evidence-based recommendations and principles. For example, Ferris (2006, 2010) argues that indirect feedback provides a more robust learning experience than its direct counterpart in first or second language contexts. Thus, Ferris (2023) recommends that feedback should come from manifold sources and be supplied at various stages of the preparation of a text, and that it should give priority to the most important issues in a particular text, focusing on error patterns rather than being comprehensive, being clear, concrete, and specific, and paying attention to what the writer did well, not just the problems in the text.

The context of learning to write at university has its own special characteristics because students are assumed to have mastered their native language and both teachers and students focus not only on the grammatical side of writing but also on the content. As explained by Evans (2013), even though there is a fruitful panorama of research on feedback at universities, which generally confirms its effectiveness, the results are often inconclusive or not always based on empirical research evidence. She adds that universities have not taken as much interest in feedback as schools and that the shift towards student-centered curriculums has not been observed in the case of feedback at university. Therefore, it is not surprising that "student and teacher dissatisfaction with feedback is well documented" (Evans, 2013, p. 73) (as a counterpoint to this situation, see the research dealing with *feedback literacy*, Winstone & Carless, 2020).

In the Spanish and Latin American university context, research on university-level academic writing has advanced considerably in recent decades (Camps & Castelló, 2013; Camps et al., 2022; Carlino, 2005, 2013; Castelló & Castells, 2022; Castelló et al., 2022; Castelló & Mateos, 2015; Castells et al., 2022; Mateo-Girona et al., 2022, 2023; Navarro, 2019, 2021; Navarro & Colombi 2022; Pardo & Castelló, 2016). In the case of university students, feedback is necessarily linked to academic writing in the various academic subjects. Most studies focus on the kinds of documents written by university students and to a lesser extent on the feedback they receive. As for the type of written texts produced in Spanish university lecture rooms, academic work predominates (Perea, 2022), e.g., taking notes and expanding on them, writing summaries, and reading and answering questions, while written reflection by students on their own learning process is uncommon (Castells et al., 2022). Differences have also been detected in terms of areas of knowledge: students taking social science degrees write more opinion essays and commentaries than those learning the natural sciences, while the latter draw up more reports (Castells et al., 2022).

Although plenty of research on academic writing has been undertaken in the Spanish-speaking context, research addressing feedback is actually still in its infancy. In the results of a survey on teachers' and students' perceptions of academic writing at Spanish universities (1,040 students, 280 teachers, nine Spanish universities) the university students reported that they received little assistance with the writing tasks assigned by their teachers, even though the teachers claimed that they usually provided help. The results showed higher levels of feedback in the social sciences than in the

natural sciences (Castells et al., 2022). Guzmán-Simón et al. (2022) focused on feedback for academic writing development in the literature review sections of the end-of-degree projects of four early childhood education teacher trainees and four primary school teacher trainees. The results showed that, in general, the students improved their texts, but that there were substantial differences. This led the authors of the study to classify the participants in three different categories depending on their way of responding to feedback. The most general type among the eight participants encompassed the so-called "initiated" students, who showed a partial improvement and positively valued the effects of feedback, while paying more attention to formal aspects. The second most frequent category consisted of the "transformed" students, i.e. those who showed an improvement in written tasks and where an assimilation of the relevance and impact of the feedback provided was observed. Finally, there was the case of an "atypical" student whose general reading and writing skills were below the level required for university studies and who was therefore unable to assimilate the feedback. Furthermore, Guzmán-Simón et al. (2022) found that students did not have a clear concept of feedback, often confusing it with assessment or with the model provided by the teacher or valuing the teacher's feedback more than their peers'. It should be highlighted that studies focused on the process of revising and rewriting university academic texts have shown that when a sociocognitive approach is taken, in which students receive instruction and are able to apply the cognitive mechanisms of revision (detection, diagnosis, rewriting) that go beyond grammatical aspects and work on revision in the classroom, their texts improve considerably (Mateo-Girona et al., 2022). Finally, the results of previous research show that future teachers (at secondary school level in Spain) often view feedback as a useful resource. Nonetheless, while they value metalinguistic feedback positively, they do not yet have a solid conceptualization of the construct despite their previous positive experiences with feedback (Carrasco & López Ferrero, 2023).

A review of the literature reveals that research on the different forms of feedback (direct, indirect, metalinguistic) is much more common in foreign language teaching environments than at universities. It shows that, in general, in the latter context greater interest is taken in the structural and content aspects of writing and students receive little help in improving their texts. Thus, in the setting of Spanish universities there is a need for research on the different forms of feedback provided by teachers, paying attention to aspects of both grammar and contextual structure. The goal of this study was to contribute to the current discussion of feedback at universities on the basis of the following research questions:

a) What types of errors do university professors detect in the texts of students taking a primary education degree?
b) What forms of feedback do university professors provide in students' texts?
c) What is the impact of feedback on university-level academic texts in relation to the type of error and form of feedback provided?

Study

This study took a non-experimental quantitative approach based on the quantitative analysis of errors committed by students and the feedback provided by teachers.

Participants and Data Collection

The database for this study came from a set of 142 texts written in Catalan by students pursuing a degree in primary education at two universities in Catalonia, distributed in two intact groups, each taking a first-year university subject. One of the universities was in Barcelona (University A), while the other was located in the center of Catalonia in a non-metropolitan area (University B). A total of 71 students wrote two versions of the texts assigned to them by their teachers. The students from University A (n = 30) were taking the subject "Catalan Language for Teaching", taught by a 59-year-old female professor with a PhD and over 30 years' experience in university education, mainly in language teaching (Teacher A). The students at University B (n = 41) were taking the subject "Techniques of Expression and Communication", taught by a 43-year-old male professor with a PhD and over 15 years' experience in university education, mainly in the area of translation (Teacher B). These two teachers indicated that the subjects they were teaching had a twofold objective: to mitigate the differences in the student's levels of competence and to improve the academic style of their written texts. The participating students were aged between 19 and 21 years old and the majority possessed a high level of Catalan proficiency, as they had had to pass a specific personal aptitude test in Catalan before being accepted for teaching training. The data was collected during the 2021-2022 academic year.

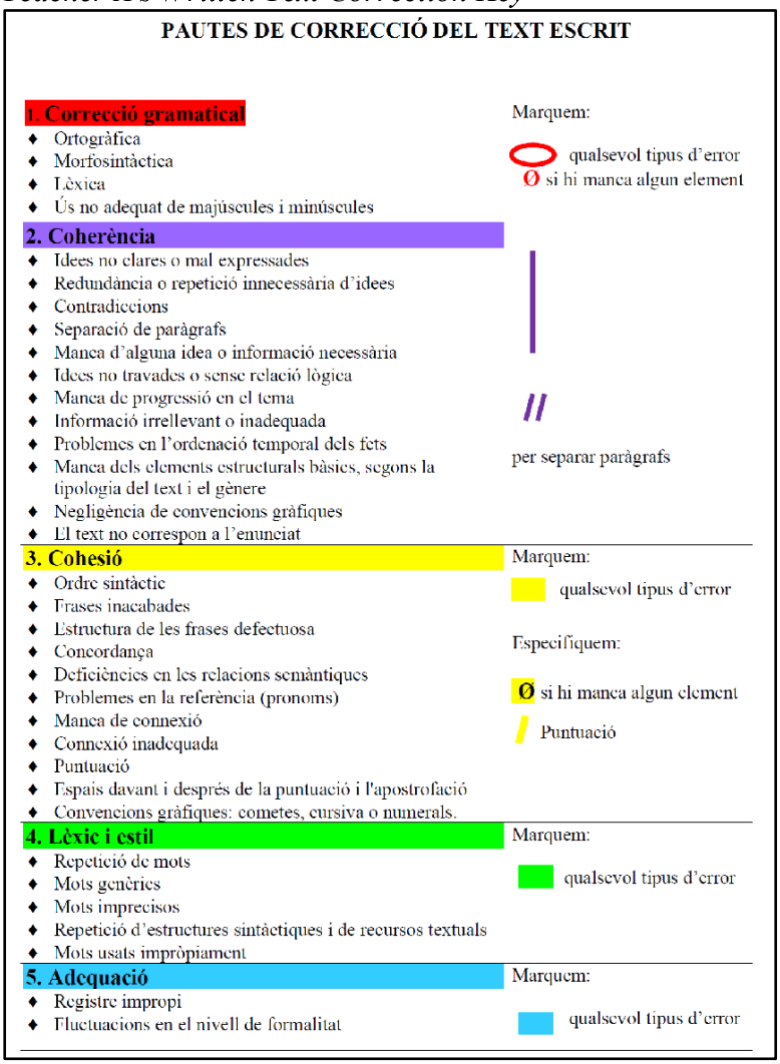
The sample consisted solely of first-year primary education degree students in order to ensure that the participants had a similar base in terms of their level of university education. The two teachers were invited to help investigate to what extent there were similarities or differences within the same grade and year at the two universities.

The main goal of the two subjects from which the data was collected was to improve the students' academic writing competence as a transversal tool serving their university studies. The written task set by Teacher A consisted of preparing an argumentative text on pollution and the habitability of the planet, while Teacher B's assignment consisted of producing an article for an education magazine (aimed at a reading public of families with school-aged children) on the subject of the importance of knowing more than one language today. Both writing tasks were accompanied by a guide of questions and/or topics to help students prepare their compositions – to be done outside the classroom and using the resources at their disposal. The respective teachers provided feedback on the first versions of the texts and the students were then asked to rewrite them in a second version, which they submitted approximately one week later.

Teacher A used a color key for the correction of errors that classified them in five categories: grammatical correctness (red), coherence (purple), cohesion (yellow), lexis and style (green), and appropriateness (blue), as shown in Figure 1. Using this key, the teacher marked the different errors in the students' texts in combination with circles (grammatical errors), lines in the margins, or by underlining mistakes (Figure 1 and Figure 2). This approach lies halfway between indirect and metalinguistic feedback (in this study it was classified as indirect).

Figure 1

Teacher A's Written Text Correction Key[1]



PAUTES DE CORRECCIÓ DEL TEXT ESCRIT

1. Correcció gramatical
- Ortogràfica
- Morfosintàctica
- Lèxica
- Ús no adequat de majúscules i minúscules

Marquem: qualsevol tipus d'error; Ø si hi manca algun element

2. Coherència
- Idees no clares o mal expressades
- Redundància o repetició innecessària d'idees
- Contradiccions
- Separació de paràgrafs
- Manca d'alguna idea o informació necessària
- Idees no travades o sense relació lògica
- Manca de progressió en el tema
- Informació irrellevant o inadequada
- Problemes en l'ordenació temporal dels fets
- Manca dels elements estructurals bàsics, segons la tipologia del text i el gènere
- Negligència de convencions gràfiques
- El text no correspon a l'enunciat

// per separar paràgrafs

3. Cohesió
- Ordre sintàctic
- Frases inacabades
- Estructura de les frases defectuosa
- Concordança
- Deficiències en les relacions semàntiques
- Problemes en la referència (pronoms)
- Manca de connexió
- Connexió inadequada
- Puntuació
- Espais davant i després de la puntuació i l'apostrofació
- Convencions gràfiques: cometes, cursiva o numerals.

Marquem: qualsevol tipus d'error

Especifiquem: Ø si hi manca algun element; / Puntuació

4. Lèxic i estil
- Repetició de mots
- Mots genèrics
- Mots imprecisos
- Repetició d'estructures sintàctiques i de recursos textuals
- Mots usats impròpiament

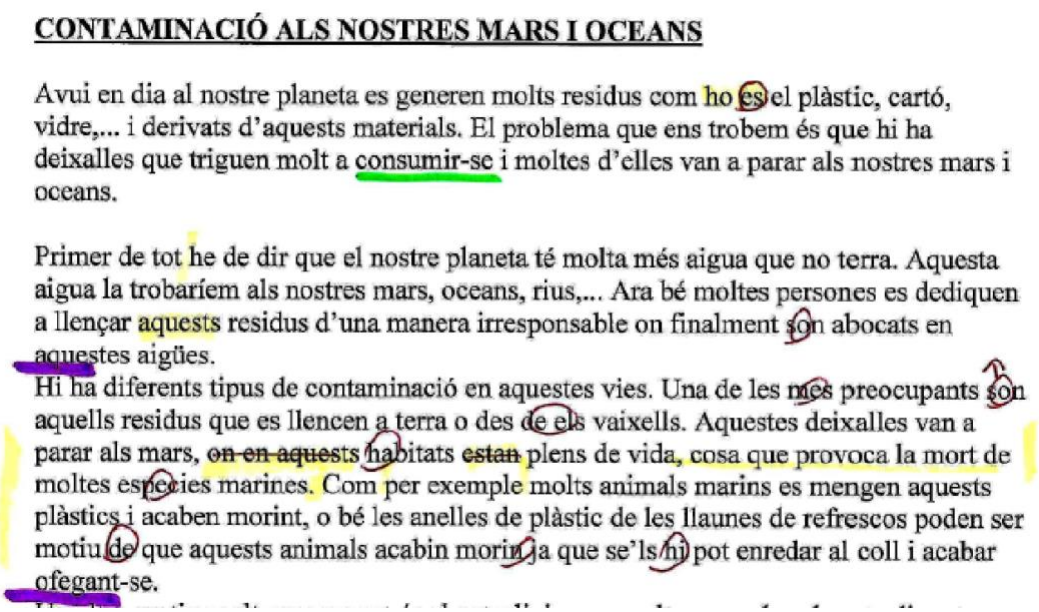
Marquem: qualsevol tipus d'error

5. Adequació
- Registre impropi
- Fluctuacions en el nivell de formalitat

Marquem: qualsevol tipus d'error

Figure 2

Example of Feedback from Teacher A.[2]



CONTAMINACIÓ ALS NOSTRES MARS I OCEANS

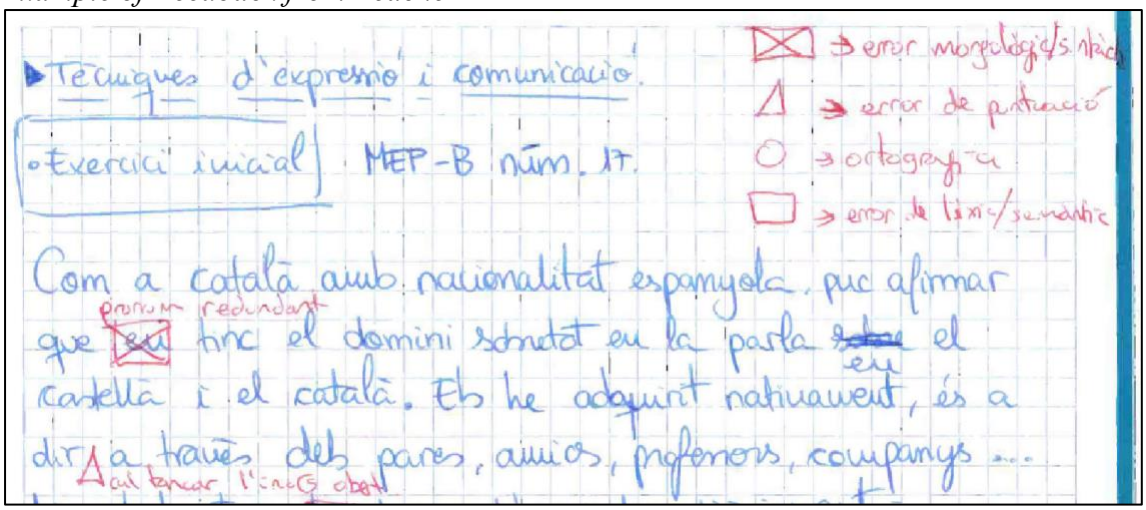
Avui en dia al nostre planeta es generen molts residus com ho es el plàstic, cartó, vidre,... i derivats d'aquests materials. El problema que ens trobem és que hi ha deixalles que triguen molt a consumir-se i moltes d'elles van a parar als nostres mars i oceans.

Primer de tot he de dir que el nostre planeta té molta més aigua que no terra. Aquesta aigua la trobaríem als nostres mars, oceans, rius,... Ara bé moltes persones es dediquen a llençar aquests residus d'una manera irresponsable on finalment son abocats en aquestes aigües.
Hi ha diferents tipus de contaminació en aquestes vies. Una de les mes preocupants son aquells residus que es llencen a terra o des de els vaixells. Aquestes deixalles van a parar als mars, ~~on en aquests~~ habitats ~~estan~~ plens de vida, cosa que provoca la mort de moltes especies marines. Com per exemple molts animals marins es mengen aquests plàstics i acaben morint, o bé les anelles de plàstic de les llaunes de refrescos poden ser motiu de que aquests animals acabin morint ja que se'ls hi pot enredar al coll i acabar ofegant-se.

Teacher B used a key with four symbols that provided feedback on four types of errors: a) morphology/syntax (rectangle with a cross inside); b) punctuation (triangle); c) spelling (circle); and d) lexical and semantic (rectangle), as shown in Figure 3.

Figure 3

Example of Feedback from Teacher B[3]



Coding and Data Analysis

When coding the written texts, the first versions, with feedback, were used to identify the type of error detected by the university teachers and the form of feedback they provided for each error. The second versions were used to observe the impact of the feedback.

The classifications developed by Penadés (2003) were considered when establishing the categories of types of error. The written language errors detected by the teachers were grouped in four blocks: spelling errors and punctuation style conventions; grammatical and morpho-syntactic errors; discursive errors; and lexical errors (Table 1).

Table 1

Classification of Errors Detected in Texts Written by the University Students

Spelling and punctuation style conventions	Grammatical and morpho-syntactic	Discursive	Lexical
1. Spelling and accenting errors	1. Noun and verb morphology	1. Discourse references	1. Redundant vocabulary
2. Phonological errors	2. Noun and verb agreement	2. Paragraph separation	2. Interferences from Spanish
3. Word separation	3. Determiners	3. Punctuation	3. Unsuitable vocabulary according to the register of the text
4. Missing word/letter	4. Verbs	4. Connectors	4. Incomplete lexical unit
5. Change in letter order	5. Pronouns	5. Inappropriate, incomplete or redundant content	
6. Punctuation style conventions: use of quotation marks, uppercase and lowercase letters, etc.	6. Prepositions	6. Expression of ideas	
	7. Conjunctions	7. Coherence of verb tenses	
	8. Sentence construction (syntax)	8. Appropriateness	
	9. Apostrophes	9. Inappropriate title	
	10. Contractions		

Apart from classifying each error according to its typology, the form of feedback provided by the teacher was indicated in each case. For the purposes of this analysis, feedback was categorized as direct, indirect, metalinguistic and metadiscursive on the basis of the classification established by Bitchener and Ferris (2012), as shown in Table 2. It should be noted that metadiscursive feedback did not figure in the original classification drawn up by these authors (Bitchener and Ferris, 2012). It was included in this study because the teachers provided feedback on discursive aspects of the texts.

Table 2
Forms of Feedback

Direct feedback	Indirect feedback	Metalinguistic feedback	Metadiscursive feedback
● The solution to the error is provided. ● Words such as "dispensable, unnecessary…" are used. ● Crossed-out words: the error is corrected by deleting the word. ● Arrows used to indicate the order of the components of the sentence and to give the solution. ● Vertical bars used to indicate errors in the separation between words.	● An error key is used and shared with the students, but the solution to errors is not given ● The place where an error is identified is marked in the text (by circling, underlining, etc.).	● A brief grammatical explanation is added. Example: "preposition in front of direct object". ● A grammatical reference is included. Example: "relative pronoun?" ● Not only is the error marked with a symbol, but a brief grammatical explanation is also included. Example: "comma needed to close the clause".	● Refers to teacher comments on components of the discourse, especially those related to the expression of ideas, content, appropriateness and register of the text. Examples: "long sentences", "unclear ideas" or "this is not typical of a written text; it is an oral language resource".

The error classification color key used by Teacher A (Figures 1 and 2) was treated as an indirect feedback system since it does not offer corrections of errors. And despite providing information along the lines of metalinguistic comments or suggestions, it was not considered metalinguistic because it did not deliver enough detail to be considered strictly as such. For example, red referred to spelling, morpho-syntax, vocabulary, and capitalization (Figure 1), but the information was not considered metalinguistic enough to correct the error. The key with four symbols used by Teacher B (Figure 3) was also treated as indirect feedback, for the same reasons as for Teacher A. In the texts of both groups, feedback was classified as direct when the teachers corrected the error (for example, when the teacher added an accent over a vowel or crossed out the incorrect use of a pronoun). It was classified as metalinguistic when the teachers wrote comments that were intended to explain the error or the way to

solve it from a metalinguistic point of view (for example, “cal tancar l’incís obert” [punctuation needed to close parenthetical content], see Figure 3). In a small number of cases, Teacher B provided dual feedback. For example, Figure 3 shows an error where the teacher crossed out the pronoun “en” (direct feedback) and also provided metalinguistic feedback (“redundant pronoun”). In total, 15 combinations of direct feedback and metalinguistic feedback and six combinations of direct feedback and metadiscursive feedback were detected. Nonetheless, when coding the data, new feedback categories (direct + metalinguistic and direct feedback + metadiscursive) were not created in view of the low frequency of this dual feedback and the fact that only one teacher used it. In the data analysis, the 21 cases of dual feedback were analyzed as if the feedback had been provided separately (direct / metalinguistic / metadiscursive).

Each error detected in the first version was classified and compared with the second version in order to study the impact of the teachers’ feedback on the students' texts. In the second version, the place where there was an error in the first version was identified and the following incorporation codes (I) were used: I-Yes, when the student incorporated the feedback and amended the error correctly; I-No, when the error was not corrected and therefore remained untouched in the second version of the text. The category called I-Reformulation of Errors was used for cases in which students completely reformulated sentences or paragraphs where they had received feedback, and there was therefore no possibility of finding out whether they had assimilated the feedback or not.

The data was coded using Atlas.ti and analyzed from a descriptive standpoint (frequencies, percentages). To analyze the differences between the forms of feedback and the statistical significance of their impact, the data was compared using the chi-square test, and with Cramer's *V* when the intensity of the relationship was significant. Finally, a structural equation model (R, *lavaan*) was prepared to explore the relationship between the variables (Appendix A).

Results

What Types of Error Do University Teachers Detect in the Texts of Students Taking a Degree in Primary Education?

The teachers detected a total of 1,396 errors in the students' texts. The highest percentage of errors were discursive (37.2%), followed by morpho-syntactic errors (29.4%), spelling errors (25.6%) and, to a lesser extent, lexical errors (7.9%) (Table 3). The chi-square results confirmed that there were no differences in the detection of errors by the two teachers: $\chi^2(3) = 3.36$, $p = 0.34$.

Table 3
Errors Detected by the University Teachers

	Teacher A ($N = 666$)	Teacher B ($N = 730$)	Total ($N = 1396$)
Discursive	264; 39.6%	255; 34.9%	519; 37.2%
Morpho-syntactic	189; 28.4%	221; 30.3%	410; 29.4%
Spelling	162; 24.3%	195; 26.7%	357; 25.6%
Lexical	51; 7.7%	59; 8.1%	110; 7.9%

Among the discursive errors, the teachers mainly detected problems with punctuation (68.4%). The incidence of the other discursive errors detected was much lower:

inappropriate use of connectors within the text (7.3%), lack of discursive references (5.6%) and inappropriate, incomplete or redundant content in the communication context (5%), as shown in Table 4.

Table 4
Discursive Errors Detected by the Teachers

	Teacher A (*n* = 264)	Teacher B (*n* = 255)	Total (*n* = 519)
Punctuation	176; 66.7%	179; 70.2%	355; 68.4%
Incorrect use of connectors	24; 9.1%	14; 5.5%	38; 7.3%
Problems with references	19; 7.2%	10; 3.9%	29; 5.6%
Inappropriate / incomplete / redundant content	3; 1.1%	23; 9.0%	26; 5%
Expression of ideas	4; 1.5%	20; 7.8%	24; 4.6%
Aspects of the title	14; 5.3%	1; 0.4%	15; 2.9%
Separation of paragraphs	13; 4.9%	0	13; 2.5%
Appropriateness (register)	5; 1.9%	6; 2.4%	11; 2.1%
Coherence of verb tenses	6; 2.3%	2; 0.8%	8; 1.5%
Total	264; 100%	255; 100%	519; 100%

With regard to morpho-syntactic errors, the teachers mainly detected them in the use of prepositions (34.1%), particularly those involving the incorrect use (in Catalan) of the preposition “a” before the direct object, errors in the use of unstressed (clitic) and relative pronouns (21.2%), and in aspects of verb and noun agreement (19.8%), as shown in Table 5.

Table 5
Morpho-Syntactic Errors Detected by Teachers

	Teacher A (*n* = 189)	Teacher B (*n* = 221)	Total (*n* = 410)
Preposition	89; 47.1%	51; 23.1%	140; 34.1%
Unstressed (clitic) and relative pronouns	33; 17.5%	54; 24.4%	87; 21.2%
Noun and verb agreement	40; 21.2%	41; 18.6%	81; 19.8%
Use of verbs	4; 2.1%	26; 11.8%	30; 7.3%
Apostrophes	10; 5.3%	14; 6.3%	24; 5.9%
Sentence construction (syntax)	5; 2.6%	16; 7.2%	21; 5.1%
Determiners	4; 2.1%	6; 2.7%	10; 2.4%
Conjunctions	2; 1.1%	5; 2.3%	7; 1.7%
Contractions	2; 1.1%	4; 1.8%	6; 1.5%
Morphological categories	0	4; 1.8%	4; 1%
Total	189; 100%	221; 100%	410; 100%

Some differences between the two teachers were encountered in the case of morpho-syntactic errors. While Teacher A frequently identified errors with prepositions

(47.1%) and, to a lesser extent, errors with unstressed (clitic) and relative pronouns (17.5%), Teacher B identified the aforesaid errors in similar proportions (23.1% and 24.4%, respectively).

What Forms of Feedback Do University Teachers Provide on Students' Texts?

The university teachers provided a total of 1,417 cases of feedback (the difference between the 1,396 errors detected and the 1,417 cases of feedback is explained by the 21 instances of dual feedback, see section 2.2). The results show a predominance of the indirect feedback (62.7%), followed by the metalinguistic (18.5%), direct (12.2%) and metadiscursive (6.6%) types (see the "Total" column in Table 6). The chi-square analysis revealed a significant difference between the teachers as regards the kind of feedback provided. Teacher B used more metalinguistic (33.6%), direct (20.0%) and metadiscursive (11.0%) feedback than Teacher A, who almost only provided indirect feedback (97.7%): $\chi^2(4) = 640.54$, $p = 0.000$, Cramer's $V = 0.67$.

Regarding the relationship between the type of error and the forms of feedback, the two teachers mainly gave indirect feedback for all types of errors (Cramer's $V = 0.3$), as shown in Table 6. Indirect feedback exceeded 50% for all four types of errors. Specifically, indirect feedback was the most common response to spelling errors (94.4%), followed by metadiscursive feedback for lexical errors (31.6%) and metalinguistic feedback for discursive (26.2%) and morpho-syntactic errors (26.1%). Direct feedback was more frequent for morpho-syntactic errors (21.3%) and metadiscursive feedback for lexical errors (31.6%).

Table 6
Form of Feedback According to Type of Error

Teachers A and B	Discursive ($n = 519$)	Lexical ($n = 110$)	Morpho-syntactic ($n = 410$)	Spelling ($n = 357$)	Total ($n = 1417$)
Direct	59; 11.2%	16; 14%	89; 21.3%	9; 2.5%	173; 12.2%
Indirect	273; 51.8%	58; 50.9%	220; 52.6%	338; 94.4%	889; 62.7%
Metadiscursive	57; 10.8%	36; 31.6%	0; 0%	0; 0%	93; 6.6%
Metalinguistic	138; 26.2%	4; 3.5%	109; 26.1%	11; 3.1%	262; 18.5%
Total	527; 100%	114; 100%	418; 100%	358; 100%	1417; 100%

The analysis of feedback as provided by each teacher, in conjunction with the type of error, showed that Teacher A used indirect feedback for all types of errors: for each of the four variants, indirect feedback amounted to more than 96% of the total, as shown in Table 7. It should be noted that Teacher A used an indirect color-coded correction key that covered a wide range of errors. In contrast, Teacher B used different forms of feedback (Table 7). The predominant feedback was metalinguistic for discursive and morpho-syntactic errors, (52.5% and 46.7%, respectively), metadiscursive for lexical errors, (57.1%), and indirect for spelling errors (89.8%). In general, Teacher B used the different forms of feedback more than Teacher A, and more direct feedback in particular.

Table 7

Form of Feedback According to Each Error Category

	Teacher A (*N* = 666)				Teacher B (*N* = 751)				Total (*N* = 1417)
	Discu. (*n* = 264)	Lex. (*n* = 51)	Morph. (*n* = 189)	Spelling (*n* = 162)	Discu. (*n* = 255)	Lex. (*n* = 59)	Morph. (*n* = 221)	Spelling (*n* = 195)	
Direct	3; 1.1%	0; 0%	3; 1.6%	0; 0%	56; 21.3%	16; 25.4%	86; 37.6%	9; 4.6%	173; 12.2%
Indirect	254; 96.2%	51; 100%	184; 97.4%	162; 100%	19; 7.2%	7; 11.1%	36; 15.7%	176; 89.8%	889; 62.7%
Metadiscursive	7; 2.7%	0; 0%	0; 0%	0; 0%	50; 19%	36; 57.1%	0; 0%	0; 0%	93; 6.6%
Metalinguistic	0; 0%	0; 0%	2; 1.1%	0; 0%	138; 52.5%	4; 6.3%	107; 46.7%	11; 5.6%	262; 18.5%
Total	264; 100%	51; 100%	189; 100%	162; 100%	263; 100%	63; 100%	229; 100%	196; 100%	1417; 100%

What is the Impact of Feedback on University-Level Academic Texts According to the Type of Error and Form of Feedback Provided?

The results on the impact of feedback showed that it had a positive influence on students' texts because they tended to incorporate written corrective feedback into the second version of their texts in order to correct the different types of errors (see the "Total" column, Table 8): spelling (86.0%), lexical (81.8%), discursive (77.8%) and morpho-syntactic errors (76.3%). As can be observed, feedback had a greater impact on spelling errors and a lower impact on discursive and morpho-syntactic ones. Between 3.5% and 8.4% of the errors in the first version were reformulated in the second by employing new linguistic structures or eliminating information (examples of I-Reformulation), as shown in Table 8.

The analysis of the results for the two teachers showed that Teacher B's feedback had a greater impact than Teacher A's. For example, in the case of discursive errors, 84.7% of the errors in the texts of Teacher B's students were corrected, while Teacher A's students incorporated 71.2% of the feedback into their texts. Specifically, 23.5% of the discursive errors made by Teacher A's students were not corrected (Table 8). The chi-square analysis showed that there were significant differences with regard to the two teachers in terms of incorporation. Less feedback was incorporated into the texts of Teacher A's students than Teacher B's: χ^2 (2) = 20.61, p = 0.00, Cramer's V = 0.12.

Table 8

Incorporation of Feedback According to the Error Category

	Teacher A (*N* = 666)				Teacher B (*N* = 730)				Total (*N* = 1396)			
	Discu. (*n* = 264)	Lex. (*n* = 51)	Morph. (*n* = 189)	Spelling (*n* = 162)	Discu. (*n* = 255)	Lex. (*n* = 59)	Morph. (*n* = 221)	Spelling (*n* = 195)	Discu. (*n* = 519)	Lex. (*n* = 110)	Morph. (*n* = 410)	Spelling (*n* = 357)
I-Yes (*n* = 1114)	188; 71.2%	40; 78.4%	133; 70.4%	138; 85.2%	216; 84.7%	51; 86.4%	180; 81.4%	169; 86.7%	404; 77.8%	90; 81.8%	313; 76.3%	307; 86.0%
I-No (*n* = 193)	62; 23.5%	6; 11.8%	34; 18%	7; 4.3%	35; 13.7%	5; 8.5%	30; 13.6%	13; 6.7%	97; 18.7%	12; 10.9%	64; 15.6%	20; 5.6%
I- Reformulation (*n* = 89)	14; 5.3%	5; 9.8%	22; 11.6%	17; 10.5%	4; 1.6%	3; 5.1%	11; 5%	13; 6.7%	18; 3.5%	8; 7.3%	33; 8%	30; 8.4%
Total	264; 100%	51; 100%	189; 100%	162; 100%	255; 100%	59; 100%	221; 100%	195; 100%	519; 100%	110; 100%	410; 100%	357; 100%

The results show that the feedback with the greatest impact – according to the type provided by the teacher feedback, i.e. with a higher percentage of incorporation – was direct (90.2%), followed by metadiscursive (83.9%), metalinguistic (82.1%) and indirect (77.1%): $\chi 2$ (8) = 29.45 p = 0.00; Cramer's V of 0.103 (see Table 9).

Table 9
Incorporation of Feedback According to the Form of Feedback (Teachers A and B)

	Direct (n = 173)	Indirect (n = 889)	Metadiscursive (n = 93)	Metalinguistic (n = 262)	Total (n = 1417)
I-Yes	156; 90.2%	685; 77.1%	78; 83.9%	215; 82.1%	1134; 80.0%
I-No	12; 6.9%	128; 14.4%	14; 15.1%	40; 15.3%	194; 13.7%
I-Reformulation	5; 2.9%	76; 8.5%	1; 1.1%	7; 2.7%	89; 6.3%
Total	173; 100%	889; 100%	93; 100%	262; 100%	1417; 100%

The analysis of differentiated data for Teachers A and B revealed that, in general, Teacher B's students incorporated more feedback (84.6%) than Teacher A's (74.9%), as shown in Tables 10 and 11. In the case of Teacher B, direct feedback was the main type incorporated (90.4%), and the least incorporated was metalinguistic (15.4%). As regards Teacher A, there were no significant differences in relation to the success of the form of feedback, because she practically only provided indirect feedback (Table 10). Only one significant difference between the results of each teacher's feedback was identified, and this occurred in indirect feedback, given its greater incorporation by Teacher B's students, 83.2% as compared to 74.8% for Teacher A's (values of the adjusted standardized residuals > 1.96 and < –1.96). In other words, although Teacher A provided indirect feedback more often, its level of incorporation was lower.

Table 10
Incorporation of Feedback According to the Form of Feedback Provided by Teacher A

	Direct (n = 6)	Indirect (n = 651)	Metadiscursive (n = 7)	Metalinguistic (n = 2)	Total (n = 666)
I-Yes	5; 83.3%	487; 74.8%	5; 71.4%	2; 100%	499; 74.9%
I-No	1; 16.7%	106; 16.3%	2; 28.6%	0; 0%	109; 16.4%
I-Reformulation	0; 0%	58; 8.9%	0; 0%	0; 0%	58; 8.7%
Total	6; 100%	651; 100%	7; 100%	2; 100%	666; 100%

$\chi 2$ (6) = 2.541, p > 0.05

Table 11

Incorporation of Feedback According to the Form of Feedback Provided by Teacher B

	R direct (*n* = 167)	R indirect (*n* = 238)	R metadiscursive (*n* = 86)	R metalinguistic (*n* = 260)	Total (*n* = 751)
I-Yes	151, 90.4%	198; 83.2%	73; 84.9%	213; 81.9%	635; 84.6%
I-No	11; 6.6%	22; 9.2%	12; 14%	40; 15.4%	85; 11.3%
I-Reformulation	5; 3%	18; 7.6%	1; 1.2%	7; 2.7%	31; 4.1%
Total	167; 100%	238; 100%	86; 100%	260; 100%	751; 100%

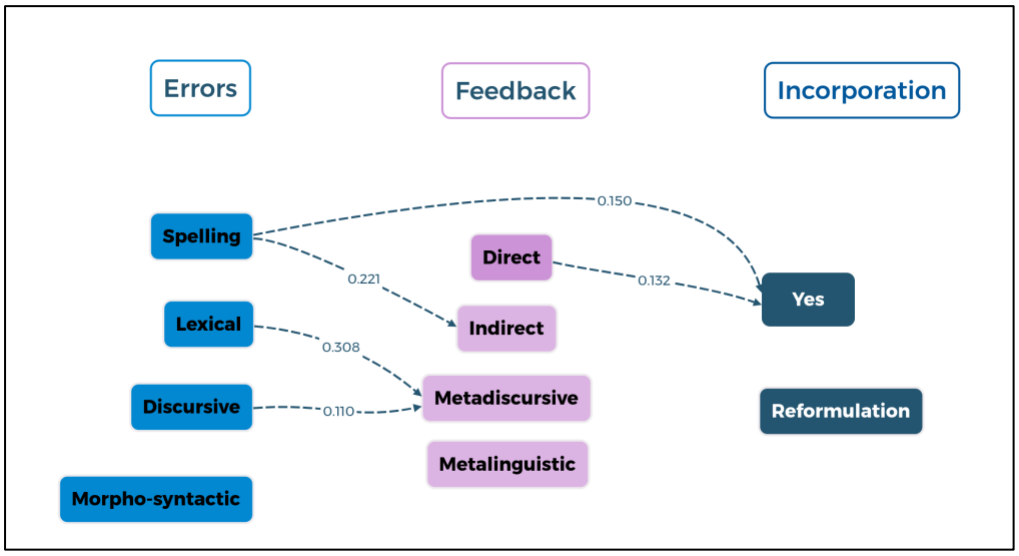
$\chi 2$ (8) = 20.85, p = 0.08, Cramer's V = 0.169

Finally, we used structural equation modeling to introduce all the variables and their relationships into a single model where the effect of one variable on another was controlled by the rest of them. The model was based on the hypothesis that different types of errors in students' texts elicit different forms of feedback from teachers, and that both the type of error and the form of feedback may lead to greater or lesser incorporation of feedback.

The results of the analysis of the structural equation model show that the incorporation of feedback by students into their texts was favored by two main conditions: that the error was a spelling mistake and that direct feedback was provided. Direct feedback was not associated with any type of error in particular in the texts. Rather, an association was found between the following variables: spelling errors with indirect feedback; lexical errors and discursive errors with metadiscursive feedback (see Figure 4). The results provided by the model met the usual standards for this kind of analysis: $\chi 2$ p = 0.917; Rmsea = 0.000; cfi = 1.000; srmr = 0.000 (Hooper et al., 2008), as shown in Appendix A.

Figure 4

Structural Equation Model with the Main Values of Intensity in the Relationships between the Variables (Positive y > 0.1), as shown in Appendix A



Discussion

This study raised three research questions: a) What types of errors do university professors detect in the texts of students taking a primary education degree? b) What forms of feedback do university professors provide in students' texts? c) What is the impact of feedback on university-level academic texts in relation to the type of error and form of feedback provided?

Regarding the types of errors detected by university teachers, the results show that they identified a considerable number in university students' texts: 1396 errors in 71 texts, i.e. an average of 19.6 errors per text. The detection of this number of errors, which can be considered high, concurs with the results of previous studies on the difficulties faced by university students – and by those taking education degrees in particular – when writing academic texts (Brion et al., 2017; Casas & Comajoan, 2015; Gallego et al., 2013). The majority of the errors detected were discursive in nature (37.2%), followed by morpho-syntactical inaccuracies (29.4%) and spelling mistakes (25.6%). Lexical errors were detected to a lesser degree (7.9%). These results suggest that university teachers mainly focus on errors related to (academic) discourse, which students – and in particular first-year students – may be less familiar with. Even so, it is remarkable that 25.6% of the errors were spelling mistakes since it might be expected that the majority of university students would have already learnt the rules of proper spelling. However, these results should not be considered exceptional, given the findings of previous studies of university students in Spain (Suárez Ramírez et al., 2021). The fact that there were no significant differences between Teacher A and Teacher B in terms of the types of errors detected (Table 3) shows that, despite the different characteristics of the two universities and their learner populations (metropolitan area of Barcelona vs. central Catalonia, differing sociolinguistic characteristics), the types of errors are quite similar.

The form of feedback provided by the teachers was mainly indirect feedback (62.7%), followed by metalinguistic (18.5%), direct (12.2%) and metadiscursive (6.6%). In this respect, it should be noted that almost two thirds of the feedback was indirect and that it went beyond providing marks or symbols (e.g. lines, circles) in an attempt to make students reflect upon the nature of the errors. In this sense, significant differences between the two teachers were identified. While Teacher A almost exclusively employed indirect feedback (over 96% for all types of errors; Table 7), Teacher B used a wider variety (for example, metalinguistic feedback accounted for 52.5% in the case of discursive errors; Table 7). Previous studies on corrective feedback in the university environment of Spain did not focus on the different types examined in this research (direct, indirect, and metalinguistic), but they do agree on the importance of encouraging metalinguistic reflection by students and promoting autonomy (Mateo-Girona et al., 2022).

The effectiveness of the different forms of feedback was gauged by looking at the extent to which feedback does or does not facilitate its own incorporation, thus resulting in improved texts. In this respect, four findings from this study are worth highlighting. First, feedback was generally effective, with 80% of the total feedback being incorporated into second versions of texts (Table 9). This finding concurs with other research results that have highlighted the central role of feedback in writing processes, while contradicting the idea that feedback does not offer substantial benefits (Bitchener & Ferris, 2012; Ferris, 2004, 2023).

Second, the effectiveness of feedback was irregular depending on the type of error. The most commonly corrected errors involved spelling (86%), lexis (81.8%),

discourse (77.8%) and morpho-syntax (76.3%, Table 8). This descending frequency can be explained by the fact that little effort is needed to correct a spelling error, compared to a discursive or morpho-syntactic one. The discursive errors were those where the least feedback was incorporated (18.7%; see Table 8). In this matter, it is worth highlighting that the errors most frequently detected by teachers – discursive errors – were the ones least corrected by the students following feedback. These results suggest that first-year university students tend to focus on problems with words, which are easy to correct (e.g. spelling), and to a lesser extent on complex aspects such as discourse, despite the fact that teachers provided feedback on both types of error.

Thirdly, the form of feedback seems to be linked to the type of error, although the results of the model did not reveal a significant association. Thus, the most incorporated feedback seems to be the direct form (90.2%), which is to be expected since all the students had to do was copy the error-free corrections specified by the teachers. Metadiscursive and metalinguistic forms of feedback were incorporated in 83.9% and 82.1% of all cases, respectively. Finally, indirect feedback was incorporated in 77.1% of cases. The lower level of incorporation of metadiscursive and metalinguistic feedback is probably related to the difficulties involved in presenting it with sufficient clarity and detail, and to the (low) discursive and linguistic competence of the students. As for indirect feedback, its effectiveness is relative (incorporated in 77.1% of cases): whereas the percentage of incorporation was high, it was the form of feedback least incorporated. This is probably explained by the fact that indirect feedback is not very precise and is used for a wide range of error types.

Finally, there was a significant difference between the two teachers regarding the incorporation of their feedback: Teacher B's feedback was incorporated to a greater extent than Teacher A's. It should be remembered that Teacher B used an error classification system based on a key with four types of errors, while Teacher A used a much more complicated color key. In addition, Teacher B used a wider variety of feedback than Teacher A. These results suggest that a system as meticulous as Teacher A's color key, which demands time and coordination when marking each type of error in different colors, may be less effective than a simpler but more varied system. These findings concur with the recommendations of several studies, which highlight that students value clear and precise feedback positively, and that providing varied feedback can have a greater impact than a single form of feedback (Ferris, 2023). Thus, Teacher B's system permitted a greater variety of feedback and he could choose to be more or less explicit depending on the type of error. In this respect, the results show that Teacher B tended to be more explicit (i.e., used more direct and metalinguistic feedback) when marking discursive and morpho-syntactic errors, which were the most frequent and least corrected in the second version of the text. Teacher B tended to provide less explicit forms of feedback when marking more specific errors – such as lexical inaccuracies, thereby encouraging the students to think about the text and correct their mistakes autonomously (see Tables 10 and 11). Nonetheless, the results of this study suggest that it would be premature to rule out Teacher A's form of feedback because the differences in the incorporation of the two teachers' feedback by the students may have been influenced by other variables, such as the subject matter of the texts, individual differences among the students, and the learning context (Ferris, 2023; Lira-Gonzales & Nassaji, 2020).

This study has some limitations that should be highlighted. One point is that it focuses on texts written by two groups of students from two universities, with only two teachers, and therefore the results cannot be generalized to other populations. It is worth noting that there were no significant differences in the number of errors detected in the

two groups, which suggests that the two groups faced similar difficulties. In future research, larger samples could be studied using an experimental or quasi-experimental design to control the conditions under which feedback is provided. Another point is that the error classification system implemented in the data analysis may have introduced a certain bias by over-representing some errors. For example, punctuation errors were classified as discursive, which may have contributed to their high frequency. The task of comparing the results of this study with other research in respect of the forms of feedback is complex, as previous studies often do not contain enough information on the coding of errors and the forms of feedback (Bitchener, 2018; Bonilla, 2020; Guénette, 2007; Karim & Nassaji, 2019; Li & Vuono, 2019). In future research, it would be worth clarifying the definitions of the different forms of feedback in order to continue exploring the impact of each of them and be able to provide recommendations to both pre-service and experienced teachers on which to use. Finally, it should be noted that the fact that students incorporated feedback in the second version of the text does not necessarily imply that they had fully internalized the metalinguistic and metadiscursive knowledge referred to in the feedback, and that they did not make the same mistakes in later texts. In this sense, the effectiveness of long-term feedback and its impact on new texts could be examined in future studies, as well as the students' cognitive processes involved in making explicit feedback information implicit (Lira-Gonzales & Nassaji, 2023).

Conclusion

Despite the fact that there is a rich panorama of research on academic writing in Spain, research on feedback has not yet been consolidated. This study explored the errors detected by first-year university teachers in two groups of primary-education degree students in Spain and the forms of feedback provided. In that vein, it contains new findings in the field of direct, indirect and metalinguistic feedback and their impact on written texts, an infrequent step forward in the panorama of research on feedback in university-level academic texts in Spain. The results of this research show that feedback – focused on both linguistic and discursive aspects – is an effective tool for improving students' texts. It is essential, looking to the future, to carry out further research on how different forms of feedback influence students' written communicative competence, and on whether the use of feedback teaching strategies could improve the effectiveness of feedback, especially in resolving discursive errors. The implications of this research underscore the need to develop additional feedback strategies in higher education aimed, in particular, at improving students' discursive competence. Furthermore, the varying effectiveness of the forms of feedback used by the two teachers raises the question of the importance of exploring ways to optimize corrective practices in order to balance efficiency and effectiveness when it comes to improving students' academic writing skills.

Acknowledgements

We thank the anonymous reviewers for their helpful feedback and all participants for their valuable contributions to this study. This research was funded by the following projects: *Teachers and Written Corrective Feedback (MERCE)* (Ref. 2020 ARMIF 00025), funded by the Agència de Gestió d'Ajuts Universitaris i de Recerca (AGAUR, Generalitat de Catalunya), *Written Corrective Feedback in Language and Mathematics Didactics Courses (RELLEMA, PIRE Project)*, funded by Centre d'Innovació i

Formació en Educació at Universitat de Vic-Universitat Central de Catalunya, and 2021 SGR 00205 to Educació Lingüística Basada en Evidència Científica, 2022-2024, ELBEC, IP: Naymé Salas (UAB).

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Notes:

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[1] Translation: 1. Grammatical correction: Spelling, morpho-syntactic, lexical, inappropriate use of capital letters. *Marked as follows*: *any type of error*, *if any component is missing*. 2. Coherence: unclear or poorly expressed ideas, redundancy or unnecessary repetition of ideas, contradictions, paragraph separation, absence of ideas or necessary information, unconnected ideas or ideas lacking a logical association, poor development of the topic, irrelevant or inappropriate information problems with the timeline of events, lack of basic components according to the type of text and the genre, disregard for punctuation style conventions, the content does not match the title. *To separate paragraphs*. 3. Cohesion: Syntactic order, unfinished sentences, poor sentence structure, agreement, difficulties with semantic relationships, problems of reference (pronouns), missing connector, unsuitable connector, punctuation, spaces before / after punctuation and use of apostrophes, punctuation style conventions: quotation marks, italics and numerals. *Marked as follows: any type of error. Specified as follows: if any element is missing. Punctuation*. 4. Vocabulary and style: repetition of words, generic words, imprecise words, repetition of syntactic structures and textual resources, words used wrongly. *Marked as follows*: *any type of error*. 5. Appropriateness: wrong register, inconsistencies in level of formal writing. *Marked as follows*: *any type of error*.

[2] Translation: "Pollution in our seas and oceans. Nowadays a great deal of waste is generated on our planet such as plastic, cardboard, glass... and derivatives of these materials. The problem we face is that there is rubbish that takes a long time to consume itself and much of it ends up in our seas and oceans. First of all, I have to say that our planet has much more water than land. This water can be found in our seas, oceans, rivers... However many people throw away this waste in an irresponsible way where it is finally dumped in these waters. There are different types of pollution in these ways. One of the most worrying are the waste that is thrown away on the land or from ships. This rubbish ends up in the seas, in in these habitats are full of life, which causes the death of many marine species. For example many marine animals eat these plastics and end up dying, or the plastic rings of soft drink cans can be the reason why these animals end up dying because they can get them tangled around their necks and end up drowning."

[3] Translation: Expression and communication techniques. Initial exercise. "As a Catalan with Spanish nationality, I can say that above all I am fluent in spoken Spanish and Catalan. I have acquired them as a native speaker, that is, through parents, friends, teachers, classmates…" Teacher's corrections: "morphological/syntactic error; punctuation error; spelling error; lexical/semantic error; redundant pronoun; punctuation needed to close parenthetical content.

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Appendix A
Model Fit Measures and Summary

Table 1

Basic Fit Measures

Measure	Value
chisq.scaled	0.011
df.scaled	1.0
pvalue.scaled	0.917

Table 2

RMSEA Measures

Measure	Value
rmsea.scaled	0.0
rmsea.ci.lower.scaled	0.0
rmsea.ci.upper.scaled	0.0
rmsea.pvalue.scaled	0.995

Table 3

CFI and SRMR

Measure	Value
cfi.scaled	1
Srmr	0

Table 4

Model Test Summary

Description	Value
Estimator	ML
Optimization method	NLMINB
Number of model parameters	38
Number of observations	1396
Test Statistic (Standard)	0.014
Test Statistic (Scaled)	0.011
Degrees of freedom	1
P-value (Chi-square) (Standard)	0.906
P-value (Chi-square) (Scaled)	0.917
Scaling correction factor	1.298
Satorra-Bentler correction	

Table 5

Complete Regressions Table

Dependent Variable	Predictor	Estimate	Std. Err	z-value	P(>|z|)	Std. lv	Std. all
Direct Feedback	Lexical	0.009	0.014	0.658	0.51	0.009	0.008
	Discursive	-0.011	0.009	-1.276	0.202	-0.011	-0.016
	Spelling	-0.003	0.006	-0.453	0.65	-0.003	-0.004
Indirect Feedback	Lexical	0.078	0.039	2.009	0.045	0.078	0.044
	Discursive	0.081	0.023	3.46	0.001	0.081	0.081
	Spelling	0.221	0.023	9.672	0.0	0.221	0.201
Metadiscursive Feedback	Lexical	0.308	0.044	6.922	0.0	0.308	0.333
	Discursive	0.11	0.014	8.076	0.0	0.11	0.213
	Spelling	-0.02	0.003	-6.63	0.0	-0.02	-0.035
Metalinguistic Feedback	Lexical	-0.229	0.028	-8.141	0.0	-0.229	-0.158
	Discursive	0.0	0.029	0.001	0.999	0.0	0.0
	Spelling	-0.235	0.024	-9.935	0.0	-0.235	-0.263
Direct Feedback	Indirect Feedback	-0.999	0.002	-508.813	0.0	-0.999	-1.458
	Metadiscursive Feedback	-0.935	0.024	-38.638	0.0	-0.935	-0.708
	Metalinguistic Feedback	-0.94	0.015	-63.912	0.0	-0.94	-1.114
Indirect Feedback	Metadiscursive Feedback	-0.83	0.019	-44.635	0.0	-0.83	-0.43
	Metalinguistic Feedback	-0.803	0.015	-53.108	0.0	-0.803	-0.652
Metadiscursive Feedback	Metalinguistic Feedback	-0.084	0.01	-8.066	0.0	-0.084	-0.132
I-Yes	Lexical	0.056	0.039	1.424	0.154	0.056	0.038
	Discursive	0.022	0.027	0.804	0.421	0.022	0.026
	Spelling	0.15	0.03	5.002	0.0	0.15	0.163
	Direct Feedback	0.132	0.057	2.313	0.021	0.132	0.108
	Indirect Feedback	-0.04	0.063	-0.635	0.525	-0.04	-0.048
	Metadiscursive Feedback	0.052	0.067	0.77	0.441	0.052	0.032
	Metalinguistic Feedback	0.051	0.061	0.839	0.402	0.051	0.05
I-Reformulation	Discursive	-0.044	0.014	-3.054	0.002	-0.044	-0.086
	Spelling	-0.019	0.02	-0.935	0.35	-0.019	-0.034
	Direct Feedback	-0.031	0.01	-3.102	0.002	-0.031	-0.042
	Indirect Feedback	0.026	0.02	1.305	0.192	0.026	0.052
	Metadiscursive Feedback	-0.04	0.018	-2.188	0.029	-0.04	-0.041
	Metalinguistic Feedback	-0.027	0.016	-1.737	0.082	-0.027	-0.044

Table 6

Covariances

Variables	Estimate	Std. Error	Z-value	P(>|z|)	Std. lv	Std. all
I-Yes ~ I-Reformulation	-0.05	0.005	-10.523	0.0	-0.05	-0.521

Table 7

Variances

Variable	Estimate	Std. Error	Z-value	P(>|z|)	Std. lv	Std. all
Direct Feedback	0.014	0.003	4.925	0.0	0.014	0.13
Indirect Feedback	0.087	0.005	16.539	0.0	0.087	0.374
Metadiscursive Feedback	0.053	0.004	12.154	0.0	0.053	0.848
Metalinguistic Feedback	0.14	0.006	25.11	0.0	0.14	0.92
I-Yes	0.156	0.006	25.308	0.0	0.156	0.969
I-Reformulation	0.058	0.005	10.665	0.0	0.058	0.98