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When Medical English as a Lingua Franca becomes Medical English for Research and Publication Purposes: A Metacognitive Approach to Student Dissertation Revision

Abstract

Medical English as a Lingua Franca is increasingly used around the world, yet the context of university education, and specifically, the publication of final dissertations, remains impervious to the idea of contact languages and requires native-like quality, thus creating demand for proofreading/revision services. This study overviews results of an applied-purpose collaborative interuniversity project, wherein final dissertations by intermediate-level English L2 students pursuing a degree in health sciences were revised by advanced-level English L2 students with a linguistic specialism, applying a metacognitive revision model. The theoretical-methodological framework relies on an eclectic combination of insights from English as a Lingua Franca, learner corpora and crosslinguistic influence, English for research and publication purposes and proofreading/revision services. The findings reflect on possible curricular interventions, both for healthcare students and for foreign language students, to enhance their specific skillset in the spirit of interprofessional communication.

1. *Introduction*

It is neither an overstatement nor a triumphalist bias to say that English permeates most areas of our life, including the healthcare domain. The high demand for qualified medical professionals and increased inter-country mobility have led many universities to create curricula for international students entirely taught in English. In such contexts, where courses are frequently taught in English to non-native students by non-native lecturers, English has become a contact language, or lingua franca (ELF) (Seidlhofer 2011; Mauranen 2018) in that it inevitably bears traces of crosslinguistic influence (CLI; Jarvis and Pavlenko 2008), i.e. any positive or negative transfer from a different language

(Odlin 1989). By virtue of such specialized context, it has been referred to as Medical English as Lingua Franca (MELF; Tweedie and Johnson 2019, 2022).

Paradoxically, after a three- or six-year degree taught in MELF, international medical and healthcare students are expected to write their final dissertations in standard English, or rather (medical) English for Research and Publication Purposes (ERPP), which "stands out as resistant to ELF" (Flowerdew 2015, 254). Producing written research in English thus becomes "a significant burden for non-native English-speaking (NNES) authors" (Wiley and Tanimoto 2012, 249) and "a linguistic injustice" (Teixeira da Silva 2021, 81) as it forces MELF writers (including students and their supervisors) to recur to revision/editing services in order to attain the crystallized standard expected in academic writing.

This study stems from an applied-purpose collaborative interuniversity project aimed to (partially) level out the disadvantage of international students at UniCamillus (an international medical university in Rome) coming from 40+ countries around the world, who had no access to revision services in their own community of practice (Ehrenreich 2018). A free service of unprofessional peer revision by proficient L2 speakers of English was offered. In return, peer revisers got university credit points. The project fostered interdisciplinary collaboration, raising the awareness of future linguists of the specificity of medical and academic discourse, and at the same time promoting higher language-sensitivity in students of nursing and physiotherapy.

This study reflects on the results achieved after the first edition of the project. To retrace the steps of the project, I describe first the theoretical framework in Section 2. The multiperspective approach envisaged is not an attempt at eschewing clear categorizations, but rather a reflection of the complexity of the data at hand. Materials and study design are detailed in Section 3, followed by the presentation of findings in Section 4 and discussion in Section 5 respectively.

2. *Theoretical Framework*

2.1 *EMP, MELF and (M)ERPP*

Whenever the use of English is applied to a specialized context, it is customary to talk about English for Special/Specific Purposes, or ESP, which becomes

English for Medical Purposes, or EMP in a medical setting (Maglie 2011). Similarly to other languages for specific purposes, EMP has a peculiar lexicogrammar and a list of other traits that is not reproduced here for reasons of space (see, e.g. Magris 1992, and Maglie 2011 for an overview). EMP may be further subdivided into different sub-branches, based on the medical specialization of the community of practice, such as English for Physiotherapy (Pettersson 2018) or English for Nursing Purposes (ENP; Woodrow 2018, 16), which are the relevant branches for this study. Regardless the medical branch, the language used in the community of practice and taught at medical universities tilts decidedly toward a standard variety in that it has to obey the rules of prescriptive grammar.

In contrast to EMP, which represents the general standardized framework, the reality of international medical universities corresponds more to MELF, i.e. Medical English as a Lingua Franca, which may understandably deviate from standard varieties. MELF revolves around intelligibility (Tweedie and Johnson 2018; see also Jordão 2018 on interprofessional use of ELF), avoids prescriptivism and instead relies on linguistic and extra-linguistic awareness and meaning recognition.

There is no dearth of research on ELF, i.e. English as a Lingua Franca, yet MELF is somewhat different. In addition to classical ELF concepts of fluidity, variability and emergence, MELF requires precision, because in medical settings "the consequences of miscommunication [are] potentially dire" (Tweedie and Johnson 2022, 2). Most research on ELF stresses its contact or vehicular nature (Seidlhofer 2011, 7; Mauranen 2018, 8), thus distancing ELF from the concept of errors and emphasising – by contrast – accommodation strategies. In ELF, deviations are "recognized as a legitimate development of English as an international means of communication" (Widdowson 2004, 361). For this reason, ELF is not typically conceptualized as "learner English", the assumption being that learners are on a route to attaining higher levels of proficiency, ideally close to native-like proficiency. Yet, medical and healthcare-related publications, including university dissertations, are characterized by "a strong orientation towards native speaker norms" (Schluer 2016, 448). This is an approach that ELF scholarship emphatically eschews, but which is very much the reality for academically proficient prospective medical professionals. English for Research and Publication Purposes (ERPP), or Medical English for Research and Publication Purposes (MERPP) thus

clashes with the principles underpinning MELF because of its – stated or unstated – presumption of linguistic perfection.

A MELF-informed approach is valid, especially where interactional aspects are concerned, such as every-day interaction. In a university context, where English is used both as a medium of instruction *and* as a standalone subject, it is possible to apply the paradigm of learner corpora. Students pursuing a degree in healthcare are expected to reach proficiency in standard medical English and thus qualify as learners of this variety.

Applying a learner corpora approach, this study investigates how nursing and physiotherapy students produce their final dissertations in English. Learner corpora scholarship has a long-standing tradition (Leech 1998), and has generated significant research over recent years (Granger, Gilquin and Meunier 2015; Granger 2019; Siyanova-Chanturia and Spina 2019). This research frequently focuses on L2 lexis and phraseology development – areas particularly susceptible to crosslinguistic influence (CLI; Jarvis and Pavlenko 2008), also known as language transfer (Odlin 1989). CLI describes the impact different languages have on each other when in contact, through the transfer of lexical, syntactical, grammatical, or discoursal patterns. Often discussed within the broader framework of Second Language Acquisition (McManus 2022), CLI relies on concepts such as error, interference and fossilization (Tweedie and Johnson 2022, 15). While having lagged behind in popularity for quite a few years, this approach has recently gained renewed acceptance because of its explanatory potential, which lends itself to pedagogical applications – which are especially relevant to this research.

Finally, since the project involved post-editing dissertations where authors used automated translation services instead of L2 drafting (Nikitina 2022),[1] I also relied on principles of translation studies to analyse the deviations from the norm identified in the texts under investigation. In particular, the error classification framework (see below) used by revisers in this study was inspired by translation studies, specifically studies on cognitive machine translation error ranking (Temnikova 2010, 3488) and revision for translation purposes

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1 Two students submitted for revision dissertations entirely written using machine translation (Google Translate) that required extensive post-editing. These texts are not included in the present study (see Nikitina 2022), yet as they were part of the same internship, the same error classification grid had to be applied.

(Mossop 2014), including such categories as incorrect word forms, stylistically incorrect synonyms, incorrect words, extra words, missing words, punctuation errors, word-order errors.

2.2 *A Metacognitive Approach to Revision*

The entire research project centred on text revision carried out by proficient users of English in the framework of their internship, which had a twofold objective: to provide a peer-revision, and to learn about editing, post-editing and revision services in general. Besides producing texts in an academically acceptable English, the project aimed at enhancing reviser's awareness of potential hurdles in scientific writing and/or translation.

Before proceeding with the analysis, a clarification of what is understood under the term "revision" in this study is needed. While frequent recourse to external linguistic services in medical publications is an indisputable and consolidated practice which has led to the creation of in-house revision and editorial services at universities and research centres (Eastwood 1981; Eastman et al. 1989), there is still considerable confusion concerning both the terminology involved and the range of services included. The professional figure carrying out such linguistic services has been referred to as proofreader, copy editor, error corrector, language corrector, reviser, editor, language broker and other similar labels (Harwood 2018, 477; see also Burrough-Boenisch 2013, and Harwood et al. 2009). In addition to terminological overlaps and inconsistencies, the field is complicated by divergent, vague or lacking guidelines on linguistic revision across different universities (Harwood 2018, 477; see also Kruger and Bevan-Dye 2010), and, in general, by scarce scholarly attention to the revision of *student writing* (Starfield 2016) and by *student-revisers*, in contrast to multiple studies on revision services for ERPP in general (to list just a few, Willey and Tanimoto 2012; Flowerdew and Wang 2016; Luo and Hyland 2017). The label "reviser" is preferred here to other solutions to indicate a wider scope of intervention.

Revision comprises the diagnosis stage, when problems are detected and defined (Flower et al. 1986, 27), and the intervention stage, where specific revision strategies are applied to resolve the problem (Wiley and Tanimoto 2012, 250) and bring the text closer to the expected norm. The revision may be carried out either in the light mode or in the full mode (Table 1).

REVISION MODE	CATEGORY
Light mode revision	– Spelling (typos) – Grammar – Hyphenations – Variety use (e.g. American vs British) – Formatting
Full mode revision	– Refine the language: clarity, cohesion, coherence and style – Word choice, terms and collocations – Restructuring sentences or paragraphs (eliminating repetitions or making comments with a request to add missing pieces)

Table 1. Light mode and full mode revision.

Besides the 'classical' errors, the revisers addressed the issue of lexical poverty and made suggestions in situations when the words, phrases or patterns used were not incorrect but repetitive, as in (1).

(1) CRISPR-Cas 9 genome editing technique is used in the creation of new medicines, agricultural products and genetically modified organisms. It is also used in pest control/pathogen control, treatment of inherited genetic diseases. It can also be used in [...].

Example (1) is taken from one student's writing and was used during the preparatory training to exemplify the distinction between the light mode of revision, which would disregard the repetition of "used", and the full mode of revision, which could recommend a synonym. Similarly, some revisers were allowed to mark the problem as "style" and then recommend a specific revision strategy. Revision strategies followed Wiley and Tanimoto (2012, 259); see Table 2.

REVISION STRATEGY	DEFINITION	EXAMPLE
1. Addition	Insertion of words, phrases, or sentences.	Hemodynamic changes in the breast >> *Hemodynamic changes in cutaneous blood flow in the breast.*
2. Deletion	Subtraction of words, phrases, or sentences.	aged between 8 and 23 weeks old >> *aged between 8 and 23 weeks.*
3. Substitution	Replacement of words or phrases (not whole sentences).	increased compared with >> *increased compared to.*

REVISION STRATEGY	DEFINITION	EXAMPLE
4. Reordering	Repositioning of words, phrases, or sentences.	Oxy-hemoglobin in both breasts decreased significantly >> *Oxy-hemoglobin decreased significantly in both breasts.*
5. Rewriting	Transformation of sentences at lexical and grammatical level; specific revision strategies cannot be identified, except those judged to be distinct from the rewriting (e.g., spelling correction, deleted article).	n/a
6. Recombining	Combining of one or more sentences, or division of one sentence into two or more sentences.	The changes [...] were measured in 3 study patterns: in the both breasts, the ipsilateral breast and forehead, the contralateral breast and forehead. >> *The changes [...] were measured. Three study patterns were used: in the both breasts, the ipsilateral breast and forehead, the contralateral breast and forehead.*
7. Mechanical alteration	Formatting or cosmetic changes (not affecting meaning; e.g., spelling, font, indenting).	Oxy-hemoglobin >> *Oxyhemoglobin.*

Table 2. Revision strategies (Wiley and Tanimoto 2012, 259).

This theoretical framework underpinned the preparatory stage of the project as well as the implementation stage, described in Section 3.

3. *Study Design*

The study overviews linguistic choices and types of revisions made by advanced L2 student-revisers with limited knowledge of medical English as opposed to intermediate L2 student-writers with expertise in healthcare but lacking a solid language skills base, in order to assess the pilot stage results and reflect on possible interventions for future project editions.

A multi-L1 corpus (Granger 2012, 12) was collected with nine partial or complete BA theses, totalling 79,349 words (Table 3). The corpus represents a

"semi-natural" collection of texts (Guilquin 2015, 10) as it gathers a natural genre for the university environment and all authors are learners of English, but their language production was constrained by the rules of academic writing and MERPP. Students pursuing a degree in physiotherapy and in nursing wrote two[2] and seven theses,[3] respectively. The corpus composition was dictated by practical considerations of offering a peer-revision service to nine graduating students who participated in the study. Among these nine students, two were native Italians, two students came from Nigeria and were native speakers of Edo and Igbo, four students were native speakers of Malayalam and one student identified herself as a speaker of Benin French. All students answered a learner profile questionnaire (with a consent form) where they self-defined their level of English. Except the Nigerian students for whom the Nigerian variety of English was an active second language, all other respondents indicated B1-B2 level of English proficiency.

L1	DEGREE	THESES	TOKENS	REVISERS*
L1 Italian	Physiotherapy	2	14,964	3
L1 Edo & Igbo (Nigeria)	Nursing	2	25,961	6
L1 Malayalam (India)	Nursing	4	17,141	7
L1 French (Benin)	Nursing	1	21,283	2
Total	-	9	79,349	13
*All revisers have worked on at least two theses.				

Table 3. Study materials.

The theses were assigned for revision (see Section 2.3) to thirteen revisers (12 L1 Italian, 1 L1 Romanian). All revisers answered a learner profile questionnaire (with a consent form) where they self-defined their level of English at C1-C2 level. All revisers majored in English and at the project completion time were in their second year of the MA Degree in "Languages and Cultures for International Communication and Cooperation" at the University of Milan. In addition to

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2 Originally, more students pursuing a degree in physiotherapy applied with their theses for revision, but it required post-editing as they made recourse to machine translation. These texts fall outside the scope of this study.

3 Although some theses were incomplete (e.g. lacking some structural parts), they are referred to as 'theses' to avoid confusion.

their general degree syllabus with modules on specialized languages and translation, they received a 5-hour training and tutorship on medical-scientific English, academic writing conventions and revision strategies, based on Willey and Tanimoto's (2012) classification. Revisers were asked to first read the whole text and introduce any changes during the second read. They were also asked to comment on the types of revisions they introduced in a separate file and to write a report on their revisions, preferably with some feedback for student writers. Given the mixed practical and learning goals as well as time constraints, it was impossible to assign the same text to all revisers. However, all revisers worked on at least two theses, and every thesis was revised by at least two revisers on a computer, either in the revision mode in MS Word or by highlighting the revisions in colour in the text. Whenever parallel revisions existed, i.e. different revision versions, these were examined separately in this study. The authors of theses received all revision versions, with the study coordinator comments.

Generally, at least one thesis or part thereof had to be revised in the light mode (Teixeira da Silva 2021), which roughly corresponds to copy editing and proofreading, i.e. detecting spelling and typing errors, mistakes in formatting and punctuation, capital letters missing, hyphenation problems, and so on. At the same time, the other text assigned to the same reviser had to be revised in the full mode. Full revision mode roughly corresponded to line editing, meaning that the revisers were allowed to introduce major changes, up to rewriting some sentences that lacked coherence and cohesion. Full revision mode included style and register issues as well as problems within the logical development of the text, the use of specific terminology and multi-word units or expressions belonging to the medical field. After the introductory part, revisers were encouraged to work in a mixed mode, deciding in a reasoned way the amount of revisions to introduce. This protocol ensured that all revisers practiced both light and full modes, and each text received at least one full mode revision.

The final dataset contains pseudo-longitudinal data (Gass and Selinker 2008, 56-57), also known as quasi-longitudinal data, i.e. data collected at the same time, but at different proficiency levels. Given the revisional overlap, it is complicated to provide exact numbers of the revised corpus. Revisers frequently left both comments and paraphrasis suggestions in comment boxes, blurring the boundaries of the final wordcount in a revised text. Consequently, the revisions were assessed qualitatively in a "manual" fashion. MS Excel sheets were used for reporting and calculation of revision strategies.

4. *Findings*

Substitution was the most popular strategy in the corpus (32%) among all revisers (see Table 4). A quintessential revision strategy, substitution replaces improper choices with other solutions (see Section 4.1 for a separate analysis). Most revisers carried out mechanical alterations – such as harmonizing the use of the variety of English (verbs ending in *-ize* vs *-ise*, etc.), hyphenations or the Saxon genitive – quite quickly, even though it was not a very frequent strategy (10%).[4] Revisers felt more hesitant to delete some words or phrases (9%) than to add them (23%) (see Section 4.2). They reported that operations of rewriting (8%), recombining (6%) and reordering (4%) required more time and effort (Section 4.3) as a logical consequence of their increased metacognitive difficulty. Table 4 provides a breakdown of revison strategies. Numbers and percentages mentioned are approximative as all categories had blurred lines. Frequently, more than one problem was diagnosed and more than one revision strategy was implemented.

REVISION STRATEGY	DIAGNOSIS / PROBLEM RESOLVED	RAW FREQUENCY	PER CENT
Addition	Omission of clauses, prepositions, logical omissions	439	24
Deletion	Extra (functional) words	181	10
Substitution	Incorrect word (form), most frequently incorrect verb forms or tenses, incorrect prepositions (ca. 87%) Register / style (ca. 13%)	620	35
Reordering	Wrong word order	85	5
Rewriting	Cohesion	155	9
Recombining	Cohesion	112	6
Mechanical alteration	Hyphenation, punctuation, the Saxon genitive, capitalization	191	11
n/d	Comments specifying that the reviser did not understand the meaning of the phrase	10	1

Table 4. Revision strategies.

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[4] Due to its low relevance for metacognitive awareness raising, this strategy will not be commented on.

4.1 *Substitution*

Most revisers felt they had to replace incorrect words or word forms; indeed 87% of all substitutions concerned cases of incorrect words or word forms, with incorrect verbs, verb forms or tenses being a rather emblematic category, see (2) and (3).

(2)   while others *separate* ED into "high and low risk" area [L1 Benin French]
(2i) while others *divided* ED into "high and low risk" area*s* [EG]
(3)   Self-confidence is described as an individual's capability to *effectuate* targets and duties. [L1 Malayalam AJ]
(3i) Self-confidence is described as an individual's capability to *reach goals and execute* duties. [MM]
(3ii) Self-confidence is described as an individual's capability to *accomplish* targets and duties. [AR]

As (3) illustrates, revisers had to address the issue of incorrect collocations with a term, also known as term-related units (Nikitina 2018, 346; Nikitina 2019, 272) of a [V+N] or a [N+V] type, at times simply replacing the wrong element as in (3ii) or by replacing the whole expression and expanding it as in (3i).

(4)   Internship programmes allow students to put classroom learning into practice, guide experience with a progressive increase in responsibility and *equip* freshly graduated practitioners to become autonomous practitioners. [L1 Igbo]
(4i) Internship programmes allow students to put classroom learning into practice, guide experience with a progressive increase in responsibility and *prepare* freshly graduated practitioners to become autonomous practitioners. [AP]

At times the substitutions replaced correct but less frequently used items with higher-frequency solutions, as (4) and (4i) demonstrate. *Equip* was used by a Nigerian author in (4) in the meaning of 'to make ready for something', and yet the reviser decided to substitute it with a more conventional *prepare*. A quick frequency check in the English Web 2020 corpus (enTenTen20) with Sketch-Engine indeed shows that *prepare* is used four times more frequently (124.87 per million tokens) than *equip* (30.34 per million tokens). The increased conventionalization introduced by proficient revisers may be compared to findings by Durrant and Schmitt (2009, 175) who overviewed how

[a]dvanced non-native phraseology differs from that of natives not because it avoids formulaic language altogether but because *it overuses high-frequency collocations and underuses the lower-frequency*, but strongly-associated, pairs characterised by high mutual information scores.

The lexicon of Nigerian students was natively-like rich, albeit their grammatical and stylistic choices bore clear signs of their national variety which clashed with ERPP requirements. Yet, it is interesting to observe how revisions resulted in increased conventionalization even in the absence of deviant lexicogrammar.

Incorrect prepositions, which represent a case of grammatical multiword units (Nikitina 2018, 364), because they are both phraseological and grammaticalized, were also frequently substituted. See examples (5) and (6).

(5) Furthermore, culture could only be understood *concerning* another culture, and a certain behaviour could only be understood within a specific cultural context [L1 Igbo]
(5i) Furthermore, culture could only be understood *with reference to* another culture, and a certain behaviour could only be understood within a specific cultural context [AP]
(6) Interns feel confident during the clinical practice *in results with* their knowledge and skills acquired through the pre-internship education and exams [L1 Malayalam]
(6i) Interns feel confident during the clinical practice *as a result of* their knowledge and skills acquired through the pre-internship education and exams [AR]

Examples (5) and (6) illustrate different phraseological competence of revisers and students, confirming Granger and Bestgen's (2014, 229) findings that L1 and L2 users diverge in their phraseological competence, with L2 users further differentiating by proficiency levels. Occasional incorrect forms were left unidentified, probably under the reviser's own crosslinguistic influence. Consider *with regards to* in (7), probably calqued from a mix of the Italian *con riferimento a* and *riguardo a*.

(7) The outcome of the study found that the planned teaching programme has been productive and improved the knowledge of adolescent girls *with regards to* polycystic ovarian syndrome regardless of which groups they are in. [L1 Malayalam]
(7i) The final analysis reported that the planned teaching programme has been productive and improved the knowledge of adolescent girls *with regards to* polycystic ovarian syndrome regardless of which groups they are in. [VP]

As raising revisers' metacognitive awareness was among the project's goals, analysis of the strategy used was welcome. Example (8) shows the reviser's conscious use of the substitution strategy.

(8) The most common and, therefore, most significant problem diagnosis I marked in Task 3 was connected to incorrect words or incorrect word forms (33 times in total) mainly solved with substitution. Among them it is interesting to notice three repeated mistakes: the first one refers to the use of a verb followed by the wrong preposition (for example, "strive in" instead of "strive for", "result to" instead of "result in" and "provide by" instead of "provide with"), the second to the choice of the incorrect word form between verb and noun (for example, "hurt" instead of "harm" and "belief" instead of "believe") and the third to the use of the wrong construction after a verb (for instance, "result students to feel" instead of "result in students feeling"). Moreover, [...] there was a repeated problem with the use of the Saxon genitive which was often missing (at least 3 times). [AR, final report]

The remaining cases of substitutions concerned register and style (9), i.e. revisers felt that the word choice of students did not meet the register expectations of a university dissertation. Moreover, while it was marked as "register" or "style", it still predominantly concerned the grammatical units, as exemplified in (9).

(9) After a comparison, the articles were either selected for the next phase or discarded based on a consensus *using* the eligibility criteria (see eligibility criteria). [L1 Edo]

(9i) After a comparison, the articles were either selected for the next phase or discarded based on a consensus, *all while considering* the eligibility criteria. [EG]

Substitutions of nominal multiword terms were rare, which could be explained by different specialization profiles of students and revisers. Nominal multiword terms act as main depositories of specialized knowledge (Nikitina 2019, 272), which is why revisers working outside of their community of practice found it reasonably challenging to address them.

(10) PCOS is a condition which has *radical effects* on various reproductive and general health inferences [L1 Malayalam]

(10i) PCOS is a condition that has *severe/serious effects* on various reproductive organs and other general health consequences [VP]

(10ii – reviewer's comment) I am not sure what you mean by "health inference". An inference is a deduction, assumption... here we are talking about the effects of PCOS so I guess, the first thing that comes to my mind is to write "general health consequences". [VP]

(11) Self-viability is imperative for *nursing understudies*. [L1 Malayalam]

(11i) Self-viability is imperative for *nursing undergraduates*. [AR]

Examples (10) and (11), both originating from L1 Malayalam students, illustrate cases where revisers had to intervene on multiword terms, despite the different specialization profile. This shows that discourse community-external revision of student writing may still bear fruit and should not be discarded. One reviser hypothesized that students may have plagiarized some sources where the style of their theses – and multiword terminology – was too different from the rest of the text. To wit, some creative linguistic choices may have been a result of students' unsuccessful attempts at paraphrasing a source, such as *understudies* in (11).

4.2. *Addition and Deletion*

Addition and deletion are two sides of the same coin, and yet revisers felt more reticent to delete elements of students' writing than to add them. Typically, deletions concerned 'extra' functional vocabulary, linking words (12) or personal and possessive pronouns (13).

(12)   Given the importance of triage and emergency services during the pandemic, they are *therefore* the intervention of our study. [L1 Benin French]

(12i) Given the importance of triage and emergency services during the pandemic, they are the main focus of our study [EG]

(13)   The literature *we* considered for *our* review unanimously echoed that simulation training appeared to be an effective strategy when compared to other learning techniques. [L1 Malayalam SJ]

(13a) The literature considered for review unanimously echoed that simulation training appears to be an effective strategy when compared to other learning techniques. [RA]

Additions, on the other hand, catered for cases of omissions, both grammatical (14, 15), lexical (16) and logical (17). Grammatical additions frequently added a missing article or verb, whereas lexical additions supplemented the lack of a lexical item, such as *ill* in (16).

(14)   For this, early detection of the symptoms is essential. [L1 Malayalam ST]

(14i) For this *reason*, an early detection of the symptoms is essential. [VP]

(15)   Hence, the relevance of educating these factors. [L1 Malayalam ST]

(15i) Hence, the relevance of educating these factors *is evident* [VP]

(16)   [...] when critically patients [L1 Benin French]

(16i) [...] when critically *ill* patients [EG]

(17)   In chapter one the thesis examines the spread of COVID-19 disease or novel corona-
         virus as a global pandemic of acute respiratory disease caused by this virus, which is
         phylogenetically closely related to SARS-CoV2. [L1 Edo, TO]

(17i)   In chapter one, the thesis examines the spread of COVID-19 as a global pandemic of
         severe acute respiratory disease caused by SARS-CoV-2, *which is closely related, on a
         phylogenetical level,* to SARS-CoV-1. [MF]

(17ii – reviewer's comment, original emphasis) Since COVID-19 is, to my understanding,
         caused by SARS-CoV-2, am I correct in assuming that SARS-CoV-1, the one respon-
         sible for the 2002-2004 SARS outbreak, was the relative you were thinking about?

(18)   It examines the epidemiology of the disease *began* in December 2019 in Wuhan, Hubei
         province in China and declared a global pandemic on March 11th, 2020. [L1 Edo, TO]

(18i)   It examines the epidemiology of the disease *that was first reported* in December 2019
         in Wuhan, *a city in the* Hubei province of *the People's Republic of* China, and then
         declared a global pandemic on March 11th, 2020. [MF]

Examples (17) and (18) are emblematic of logical additions. The reviser who had
some previous knowledge of the topic and had access to a member of the nurs-
ing community of practice frequently introduced additions that went beyond a
mere grammar check. In (17) he reordered the sentence and added a mention of
SARS-CoV-1, triggered by the student's *phylogenetically related*, as explained in
(17a1). In (18) the same reviser added general knowledge specifications to render
the sentence precise. Such logic-related additions were more prominent for this
reviser, so this might be attributable to idiosyncrasies, whereas his peers were
less willing to introduce modifications that went beyond grammar and style.

4.3. Rewriting, Reordering and Recombining

Collectively, rewriting, reordering and recombining make up 18% of all revi-
sions, and frequently these strategies are concomitant. Already illustrated in
example (17i), reordering typically concerned grammatical objects and comple-
ments. Alternatively, it was used to topicalize a linking expression. At times it
was difficult to distinguish between substitution and rewriting, as in (18i), or
among rewriting, substitution, reordering and deletion, as in (19i).

(18)   *By doing this review, it'll go* an extended way in assisting other researchers by providing
         the required insight and knowledge about the study. [L1 Nigerian Igbo]

(18i)   *The review is aimed at* giving an extended way in assisting other researchers by provid-
         ing the required insight and knowledge about the study. [MdB]

(19)   Subsequently, *all the pathologies* that can affect the VS *were briefly described*, then turning to what was fundamental for us: traumatic brain injury. [L1 Italian]

(19i) Subsequently, *the focus shifts on* all the pathologies that can affect the VS, then turning to what was fundamental for us: traumatic brain injury. [BD]

A common trend for these revision strategies is that they increased the conventionality of expressions (see also Section 4.1). This shift towards conventionalization concerned predominantly academic phraseologies: *routines*, i.e. larger chucks of texts, and *formulas*, i.e. shorter prefabricated patterns. Most revisers felt confident intervening on academic phraseologies due to their specific academic background. Serendipitously, this was one of the most problematic areas identified by student-writers in the pre-project questionnaire.

(20)   Nurse cared and educated patient with positive COVID-19 nasopharyngeal PCR test admitted in the floor units dedicated exclusively to these patients by providing awareness of proning, prone position,... [L1 Igbo GO]

(20i) Nurses cared *for patients who underwent a nasopharyngeal PCR test and tested positive for COVID-19: these patients were admitted in floor units dedicated exclusively to them, where they were educated on the importance of* proning and prone position. [EG]

(21)   According to the WHO (2019), this new virus is mainly characterized by acting differently in everyone, and that is because the person carries other health problems in addition to the new one or simply because this virus comes from a different strain than others, and therefore can be more aggressive. [L1 Edo]

(21i) According to the WHO (2019), this new virus is characterized by *how it acts* differently in each patient, *either because of its conjunction with pre-existing health issues, or because it belongs to a different, potentially more aggressive strain*. [MF]

Most instances of rewriting, as illustrated in (20i) and (21i) tackled issues of cohesion and register. A relatively low number of rewritten passages may be also interpreted as an indicator of peer solidarity: revisers preferred to leave comments with constructive suggestions rather than plunge into extensive rewriting.

5. *Discussion and Conclusions*

The project yielded positive results both in terms of effectiveness of textual revision and the revisers' metacognitive 'awakening' as well as promoted interdisciplinary collaboration. As student-writers were asked to accept changes

and read revisers' feedback on their own, instead of getting a 'perfect' copy, the project proved to be an effective learning moment for them. Student-writers gratefully recognized and acknowledged the linguistic assistance received, giving credit to their revisers in the acknowledgments section, fostering thus the spirit of collaboration.

Student-revisers noted that an analytical approach to revision, specifically the requirement to create a commentary and a report, not only made them more conscious and cautious about their modifications but also encouraged them to consult a variety of additional sources. While it seems unlikely that the paradoxical transition from MELF to MERPP for university dissertations will cease to exist, this project may lay the foundation for smoothing the transition. The un- and inter-professional revision service resulted in increased conventionality of academic routines and formulae, giving theses a more academically acceptable appearance and resolving issues of collocability in term-related units.

Practically, these findings could inform a framework for a preparatory module on academic writing for healthcare students, addressing challenging issues such as academic routines, [N+V] or [V+N] units, and functional vocabulary. Revisers, in turn, should receive further training on using corpora as reference tools to navigate the fine line between conventionalizing ungrammatical expressions and recognizing lesser-used but correct expressions. Proposing clear guidelines for cases of rewriting and recombining remains problematic due to their idiosyncratic nature. As for cohesion-related issues, the only viable solution would be to provide intensive training and/or a language test for future reviser candidates.

Recourse to "convenience editing" (Willey and Tanimoto 2012), i.e. interdisciplinary collaboration, proved to be an excellent opportunity to showcase and implement the academic writing skills of student-revisers with a linguistic specialization. This approach effectively met the specific needs of medical student-writers, who admitted to being unfamiliar or uncomfortable with academic writing and academic phraseologies. Overall, the project was a rewarding experience for all participants, fostering growth from both academic and human perspectives. The interdisciplinary collaboration not only enhanced the quality of academic writing but also demonstrated the profound impact of integrated learning experiences across fields.

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