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Approaches to simplifying academic texts in English: English teachers’ views and practices

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Abstract

Reading academic and specialised texts in a foreign language is a difficult process, and support for making materials more linguistically accessible is scarce. Approaches used in English as a Foreign Language (EFL) teaching could inform responses to this, as in EFL academic texts are routinely simplified to make them more comprehensible. However, there is a lack of research on the most used method of making texts more accessible – intuitive text simplification. In this study, 24 experienced EFL teachers with Spanish, Chinese and Russian language backgrounds were asked to simplify two academic texts in an online task and then to explain their rationale for each change in a follow-up stimulated recall interview. The study showed that despite the reliance on subjective approximations of comprehensibility in intuitive simplification, there is a shared understanding among teachers as to what constitutes a more accessible academic text in English. The study creates a clearer conceptualisation of the processes involved in intuitive text simplification and suggests a set of pedagogical guidelines that can be used in language teacher training for both general and specific English teaching purposes, as well as in training and support of English-medium instruction (EMI) teachers.

1. Introduction

Reading is an important channel of learning, especially in academic contexts. However, reading academic texts in English is often a difficult process for learners, particularly when English is not their first language (L1). Research evidence suggests that the primary source of these difficulties posed by reading in a foreign language stems from the lack of vocabulary knowledge in English and the consistency of comprehension across different sections of the text among learners, which creates a barrier for many of them to understand the content presented in the text (e.g., Atai & Fatahi-Majd, 2014; Hsu, 2014; Rets et al., 2020; Schmitt et al., 2011; Ward, 2001).

The difficulties associated with English academic reading among non-native speakers of English have been voiced in various areas of English language instruction, with suggestions put forward that teachers should be able to adapt the content of the class according to the learners’ English level (e.g., Coxhead & Boutorwick, 2018; Galloway et al., 2017). One such area where these suggestions have been voiced is English-medium instruction (EMI). For example, Coxhead and Boutorwick (2018) in their study with 468 participants enrolled in an EMI international secondary school found that low-proficiency learners needed support with learning English academic vocabulary. The authors concluded that these learners ‘would
benefit from teacher-developed learning materials', or 'simplified reading materials, which are more comprehensible in all subject areas' (Coxhead & Boutonwick, 2018, p. 606). A recent study in a representative ESP area – aviation English – also suggested that additional teacher-guided language training is needed to prepare ESP students to learn how to clarify or enhance explicitness of their message when communicating in English, as the lack of comprehensibility in their future practice is directly related to fatal accidents (Ishihara & Prado, 2021).

Simplification of learning materials in English referred to in the studies above involves reducing the complexity level of the original, authentic texts (texts written for English L1 speakers) to increase their linguistic accessibility and make them a better match to the learners’ English proficiency level (e.g., Crossley et al., 2012; Rets & Rogaten, 2021; Rets et al., 2022). A number of studies have indicated that compared to authentic texts, simplified texts lead to better text comprehension (Crossley et al., 2014; Long & Ross, 1993; Tweissi, 1998; Yano et al., 1994), text recall (Crossley & McNamara, 2016), and to shorter re-inspection time of the text, while directing EFL learner’s attention to the text’s main themes (Rets & Rogaten, 2021).

At the same time, existing teacher training programmes do not offer courses aimed at equipping teachers with effective linguistic accessibility strategies, support for the text adaptation process is scarce (Crossley et al., 2012; Jin & Lu, 2018), and research on reading comprehension instruction in relation to English academic texts is still limited (Atai & Fatahi-Majd, 2014). For example, Carabantes and Paran (2022) reported that although the ability to select and design materials is part of the official standards for teacher education in many countries, learning to adapt materials is ‘still an elusive component in most teacher education programmes’ (p. 2). The lack of support with text simplification is particularly prominent with EMI teachers, who are not trained to provide language support. Numerous studies showed that EMI teachers admit to feeling inadequately prepared to teach non-native speakers of English (e.g., Doiz & Lasagabaster, 2021; Farrell, 2020).

In lack of such support, teachers resort primarily to an intuitive approach, relying on their own teaching experience or writing expertise, and on their beliefs concerning what makes a text more comprehensible to the target group of learners (Crossley et al., 2012; Young, 1999). Secondarily, teachers turn to a structural approach to simplification, guided by the use of word lists and traditional readability formulas to assess the complexity of the simplified texts afterwards (Jin & Lu, 2018). This approach mainly involves replacing rare words with the words of higher frequency of use in the language, and shortening sentences (Tickoo, 1993). Structural simplification can also involve elements of grammatical simplification – the process of replacing advanced grammatical structures with the ones learners acquire at earlier stages of language development. For example, Biber et al. (2011) contrasted 28 grammatical features in research articles with conversation and hypothesised that lower-level proficiency learners are likely to use fewer noun phrases and complex phrases (groups of modifiers that do not present a complete thought with a subject and verb). Follow up testing studies with participants at different levels of English language proficiency confirmed this hypothesis (e.g., Ansarifar et al., 2018; Lan et al., 2022; Parkinson & Musgrave, 2014). The evidence from these studies suggests that noun phrases and complex phrases might be avoided when preparing materials for lower levels.

However, structural simplification has been criticised for its overreliance on readability formulas and the associated practice of focusing on word frequency and sentence length alone in simplification. It has been demonstrated to be less effective in helping readers understand the text, as this approach ignores or even disrupts text cohesion – the ways in which the ideas conveyed in the text are connected (e.g., Crossley et al., 2016; Reed & Kershaw-Herrera, 2016). In light of these inherent weaknesses of the structural approach, the use of this to develop simplified texts has been criticised (e.g., Crossley et al., 2012; Long, 2020), making the first approach – intuitive simplification – a more popular type of text simplification used in classrooms.

Despite the widespread use of intuitive simplification among teachers and its demonstrated potential to alleviate the burden of comprehension, the changes that teachers make in the original texts ‘are not well studied or supported in literature or in training courses’ (Tomlinson & Masuhara, 2017, p. 83). Furthermore, most studies with teachers on this topic are based on verbal classroom discourse and do not focus on specific textual modifications that facilitate the comprehension of academic texts (e.g., Basturkmen & Shackleford, 2015; Glass & Oliveira, 2014).

The main purpose of this study is to identify the strategies that teachers use when simplifying academic texts for non-native English speakers at lower proficiency levels. For this study, we chose English as a Foreign Language (EFL) context for three reasons. First, the language classroom is the most immediate context of use of text simplification (Crossley et al., 2011, 2012; Long, 2020). Secondly, EFL teachers can be considered an expert population on the topic in light of their direct experience with English learning materials, and their skill at judging the text’s level which is right for their learners (Jin & Lu, 2018). Finally, while still aimed at non-native English speakers at varying levels of English proficiency, EFL curricula have started to expose more learners to academic reading, as an increasing number of EFL learners go on to engage in online, lifelong learning and follow subject courses in English (Atai & Fatahi-Majd, 2014; Bakken & Lund, 2018; Rets & Rogaten, 2021).

Thus, one contribution of this study is to create a clearer conceptualisation of the processes involved in intuitive simplification by building an inventory of simplification strategies used by teachers. Additionally, this inventory and a text simplification task can be used in teacher training programmes to better prepare novice teachers in both general and specific English teaching settings for the challenges they will face in their future practice. This study can also inform those working in other areas, such as EMI, on strategies for mediating access to the text’s content.
2. Literature review

2.1. Effects of intuitive text simplification

Substantial research on intuitive text simplification has analysed the effects of this practice and the kind of linguistic features simplified texts have. One foundational work on the topic has been carried out by Allen (2009), who built a corpus of news texts in English intuitively simplified to beginner, intermediate and advanced English as a second language (L2) levels. The author then compared the use of relative clauses across the three levels of the simplified texts. In the methodology section, the study provided a brief account of how the authentic texts were simplified – only simplifying when absolutely necessary; modifying idiomatic language at the intermediate level and removing it completely from the elementary level; removing all passive structures and phrasal verbs from elementary level texts. Allen (2009) showed that relative clauses were often omitted from lower levels when the person performing intuitive simplification needed to abridge the original text or split sentences – divide a long, complex string of clauses into single, independent clauses. The author further found that relative clauses were added to simplified texts when there was a need to supply information in the text or elaborate on causal relationships. The corpus of intuitively simplified texts in Allen (2009) was further explored in the subsequent studies of Crossley et al. (2011, 2012).

Crossley et al. (2011) investigated which readability formula best classifies the text level of intuitively simplified texts. Their study showed that the readability formula, which was based on psycholinguistic and cognitive models of reading, had higher scores for this classification than the traditional readability formulas. Thus, the study showed that writers who are engaged in intuitive text simplification do not simply select words that are shorter, or reduce the number of words in sentences, but instead focus more on the features related to text comprehensibility (e.g., cohesion and meaning construction) and cognitive reading processes (e.g., decoding and syntactic parsing).

Crossley et al. (2012) examined which linguistic features distinguish the levels of intuitively simplified texts (beginner, intermediate and advanced) from one another, and more generally – what linguistic features constitute comprehensible input. The study showed that the beginning simplified texts contained more cohesive devices, less sophisticated language, and easier syntax (e.g., greater syntactic similarity and fewer words before the main verb) than the advanced simplified texts. The majority of the differences found between the levels were lexical in nature, with lexical diversity (proportion of unique vs. repeated words in the text) demonstrating the strongest relationship to the text level.

Two common findings in these studies are that text simplification produces texts that contain more linguistic features related to text comprehension and readability than authentic texts, and that intuitive text simplification is multifaceted, going beyond the traditional processes used in structural simplification. However, the sizeable body of research literature on text simplification mainly consists of testing studies that examined the effects of simplified texts either using comprehension testing with EFL learners (Crossley et al., 2014; Long & Ross, 1993; Tweissi, 1998; Yano et al., 1994), or corpus and computational approaches (Allen, 2009; Crossley et al., 2011, 2012). Few studies have explored how and why teachers make specific linguistic modifications in authentic academic texts. Thus, there has been detailed exploration of the effects of simplification, but no detailed account of how texts were simplified or what weighting or priority the different simplification processes had.

2.2. Teachers’ approaches to text simplification

The existing studies on intuitive text simplification mainly focus on verbal accommodation strategies teachers use in class to help learners understand the material better (Basturkmen & Shackleford, 2015; Glass & Oliveira, 2014). For example, Basturkmen and Shackleford (2015) analysed 8 h of recorded lectures on accounting and focused on the classroom interaction. The authors found that participants had to use strategies to accommodate students’ understanding of the learning content once every 3 min during the lecture. This finding further highlights the barriers that learners for whom English is not the L1 have with text comprehension. In terms of the strategies employed by the teachers to facilitate comprehension, most of these strategies were found to be related to vocabulary (46%) and conventional articulation of ideas in the register of accounting (41%). Another frequently used strategy in the study was expansion, which involved the teacher repeating the meaning of the student’s incorrect utterance in English but providing a linguistically accurate version and expanding on it. In an earlier study conducted with science teachers, Glass and Oliveira (2014) used qualitative micro-ethnographic analysis to research the strategies teachers used to promote student comprehension in class. The authors also found that the most commonly used strategy, simplified rewording, was related to vocabulary simplification.

The studies on text simplification conducted with language teachers simplifying written text are, for example, Green and Hawkey (2012), and Young (1999). Green and Hawkey (2012) asked four experienced English teachers to reflect on the processes they employed when adapting source journalistic texts for a test of academic reading. The study elicited several strategies employed by participants, which are presented below in the descending order by the frequency of their use: a) deletion, or cutting the information in the text participants found redundant (e.g., journalistic elements) or repetitive; b) substitution, or replacing technical vocabulary in the text with the words that might be more familiar to the reader; c) expansion, or adding to a stretch of text to make implicit information in the text clearer to the reader; and d) move, or changing the position of elements within a text to reduce overall text length.

Young (1999) recruited two theoretical linguists and four pairs of university-level Spanish instructors to simplify magazine articles to second-year university-level Spanish learners and explain the rationale for each change they made. While Young
number of participants in the three language groups. Teaching information on participant characteristics appears in Table 1 below. As can be seen from the table we have an equal practice required to establish teaching expertise (e.g., Webb et al., 1997).

In academic mailing lists related to EFL teaching. In line with Robinson (2014) we sought diversity in participant profile and teaching context as a means to assess whether the patterns in the findings of how EFL teachers approach text simplification were consistent and could be considered to have a level of generalisability. To ensure participants’ diversity and to control for the effect of participants’ language background on their choice of simplification strategies, we recruited participants whose L1s (Chinese, Spanish and Russian) had strong contrasts to each other and were also familiar to the authors. These three L1s belong to the language families that are among the top ten world languages by the number of L1 speakers. Secondly, we controlled for the amount of time participants spent teaching EFL. The focus of the study is on experienced teachers and a minimum five years of teaching experience was chosen in compliance with that used in other studies as the minimum level of practice required to establish teaching expertise (e.g., Webb et al., 1997).

In total, 24 EFL teachers volunteered to participate in this study. Most participants were female (n = 22), which is largely reflective of the language teaching field. All participants held a minimum qualification level of an undergraduate degree in EFL teaching. Information on participant characteristics appears in Table 1 below. As can be seen from the table we have an equal number of participants in the three language groups.

Table 1
Participant Demographics (N = 24).

<table>
<thead>
<tr>
<th>Category</th>
<th>Percentages</th>
</tr>
</thead>
<tbody>
<tr>
<td>L1 and the country of teaching English</td>
<td>Chinese: 33.33%, n = 8, all participants teach EFL in China</td>
</tr>
<tr>
<td></td>
<td>Spanish: 33.33%, n = 8, Peninsular Spain (n = 4), Latin America (n = 4): Colombia (n = 1), Bolivia (n = 1), Cuba (n = 1), Mexico (n = 1)</td>
</tr>
<tr>
<td></td>
<td>Russian: 33.33%, n = 8, all participants teach EFL in Russia</td>
</tr>
<tr>
<td>English teaching experience</td>
<td>5 years: 12.5%, n = 3</td>
</tr>
<tr>
<td></td>
<td>6–10 years: 41.66%, n = 10</td>
</tr>
<tr>
<td></td>
<td>11–15 years: 12.5%, n = 3</td>
</tr>
<tr>
<td></td>
<td>16–20 years: 16.66%, n = 4</td>
</tr>
<tr>
<td></td>
<td>21 or more years: 16.66%, n = 4</td>
</tr>
<tr>
<td>Level of institution</td>
<td>Some participants indicated more than one option. They all teach EFL at the following levels:</td>
</tr>
<tr>
<td></td>
<td>University: 37.03%, n = 10</td>
</tr>
<tr>
<td></td>
<td>Secondary school: 11.11%, n = 3</td>
</tr>
<tr>
<td></td>
<td>Primary school: 3.7%, n = 1</td>
</tr>
<tr>
<td></td>
<td>Private language school/adult continuing education: 48.14%, n = 13</td>
</tr>
<tr>
<td>Language proficiency level at which the</td>
<td>Some participants indicated more than one option, as per the Common European Framework of Reference (CEFR):</td>
</tr>
<tr>
<td>participants teach</td>
<td>Beginners A1-A2: 22.5%, n = 9</td>
</tr>
<tr>
<td></td>
<td>Intermediate B1-B2: 57.5%, n = 23</td>
</tr>
<tr>
<td></td>
<td>Advanced C1-C2: 20%, n = 8</td>
</tr>
</tbody>
</table>

3.2. Procedure

The ethical clearance for this study was obtained from the research ethics committee at the first author’s institution. The methods of data collection involved two phases: an online task completed through a web-based survey tool, and a follow-up Skype interview. The online task consisted of a short demographic questionnaire and a simplification task of two academic
texts, approximately 300 words in length. Two texts were chosen from an online learning platform, OpenLearn (2022), which allows a free reuse and revision of the academic materials it hosts. All materials on the platform are in English, written for English L1 speakers (Rets et al., 2020; Rets et al., 2022), and the platform itself is curated by a university in the UK. There were two criteria for the selection of the texts. One criterion was that the texts should be part of the first section of introductory courses, so that they do not assume prior knowledge of the subject matter from an EFL teacher. Another criterion was that the texts represent different topics (‘Introduction to vitamins’ and ‘Social workers’) to control for the effect of topic on approaches to text simplification.

Participants were asked to retype each text in the web-based survey tool, and to simplify it to make it more understandable to intermediate proficiency (B1) speakers as defined by the Common European Framework of Reference (CEFR) (Council of Europe, 2001). Participants were able to make as many modifications to the original text as they felt were important. The online task was not timed; participants took as much time as they needed to complete the task.

The online task was followed by an interview in Skype at a time convenient for each participant and within three days after the submission of the online task. The interview was semi-structured and followed the format of a stimulated recall (Gass & Mackey, 2016). In the interview, participants looked back at the original texts from the online task and the texts they simplified; they were asked to explain the rationale for each change they had made in the simplification. Each participant received a £10 gift voucher for their participation.

The average length of the interviews was 65 min. Each interview was conducted in English and was audio recorded during the Skype call using the functionality of the software. In this study, pseudonyms are used for the names of participants. All data from the 24 interviews were transcribed manually from the audio recordings and uploaded into NVivo11 for further analyses. The average length of the interview transcripts was 7500 words.

3.3. Data analysis

The research question of this study concerned the type of strategies used in academic text simplification and the priority of their use by EFL teachers. To answer this question, the analysis of the task responses was conducted through the comparison of the original and simplified texts to detect any modifications that each participant made. Once each change in each participant’s simplification was detected, this analysis was followed by content analysis in NVivo11 using the processes outlined below.

The unit of content analysis was each modification that occurred in the simplified text. As there is very limited research on teachers’ approaches to text simplification, these modifications were first coded inductively. A confirmation stage of the analysis of the codes was then performed using, where possible, the information from the stimulated recall interviews, which provided participants’ descriptions of each modification. Thus, the second coding phase allowed us to refine the coding scheme by adding new sub-categories or re-labelling the existing ones. To facilitate the narrative in a structured way, the sub-categories were also organised into larger category units: ‘Form (lexico-syntactic) modifications’, ‘Content modifications’, and ‘Cohesion modifications’. The three larger categories emerged from a process of gradual synthesis aided by consulting the interview data. Participants mainly talked about facilitating understanding of either the literal meaning of the text (form modifications), text’s implicit meaning (content modifications) or how the elements in the text are connected to one another (cohesion modifications). Three reflective sessions were conducted with other independent reviewers to refine exclusionary and inclusionary criteria for the codes. The final inter-rater reliability session with one further independent reviewer who was not involved in the previous stage showed 95% of agreement with the coding. In order to analyse the priority of use of the different simplification strategies, the number of frequency references for each sub-category from each participant was exported from NVivo11, which enabled us to calculate the relative frequency of use of these strategies across the sample and in the three L1 groups. The final coding scheme developed in this study to answer the study’s research question with the corresponding descriptions of each sub-category is presented in Table 2 below.

<table>
<thead>
<tr>
<th>Strategies</th>
<th>Sub-strategies</th>
<th>Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Form modifications</td>
<td>Change word frequency</td>
<td>Replace rare word(s) with what a teacher feels is more common word(s) in language</td>
</tr>
<tr>
<td></td>
<td>Convert into SVO order</td>
<td>Make the subject of the clause/sentence more pronounced; add or replace</td>
</tr>
<tr>
<td></td>
<td>Split sentence</td>
<td>a phrase with subject-verb-object</td>
</tr>
<tr>
<td></td>
<td>Convert passive into active</td>
<td>Divide a sentence with two or more clauses into several shorter sentences</td>
</tr>
<tr>
<td></td>
<td>Compress meaning</td>
<td>Convert passive voice structures into active voice</td>
</tr>
<tr>
<td></td>
<td>Add emotional emphasiser</td>
<td>Express the same or similar idea using fewer words</td>
</tr>
<tr>
<td></td>
<td>Convert noun into verb</td>
<td>Add or replace with (a) word(s) that carries emotion</td>
</tr>
<tr>
<td></td>
<td>Break the noun phrase</td>
<td>Convert nouns into verbs</td>
</tr>
<tr>
<td></td>
<td>Split paragraph</td>
<td>Not use too many words before the noun in the noun phrase</td>
</tr>
<tr>
<td></td>
<td>Combine sentences</td>
<td>Split longer paragraphs into shorter paragraph chunks</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Combine the ideas from two sentences into one sentence</td>
</tr>
</tbody>
</table>

(continued on next page)
Besides triangulating our inductive coding with the teachers’ responses in the stimulated recall interviews and conducting four reflective intercoder sessions, the reliability of our coding scheme has been further established through rigorous testing of the simplification strategies in a follow up study (Rets & Rogaten, 2021). Participants in Rets and Rogaten (2021) were 37 EFL learners at lower levels of English proficiency, from diverse language backgrounds, recruited from adult English learning programmes. Participants’ L1s were from four language families – Indo-European (n = 21), Sino-Tibetan (n = 12), Altaic (n = 2), Afro-Asiatic (n = 2). Each participant in Rets and Rogaten (2021) read authentic academic texts and the academic texts simplified using our inventory. The between-subjects design and triangulation of multiple research methods – multiple choice comprehension testing, text recall, and eye-tracking revealed that these simplification strategies led to a significantly better text comprehension, text recall, and to a decrease in processing time during text re-reading. This follow-up research provided strong emerging evidence that the simplification strategies elicited in the present study are effective for the text comprehension and processing among non-native speakers of English. Thus, it is important to provide a detailed account of the inventory of the text simplification strategies put together in this research.

4. Results

4.1. EFL teachers’ text simplification strategies

We identified 1396 codes (i.e., acts of simplification) through the content analysis in this study. The codes were divided into 15 sub-categories (hereafter ‘sub-strategies’), which were grouped into three larger category units (hereafter ‘strategies’). Figure 1 below illustrates the relative frequency of different strategies and sub-strategies across the participant sample. As can be seen from the figure, replacing infrequent words with the words that the teachers perceived as more common (‘change word frequency’) was the sub-strategy used most often by the participating teachers (534 instances of use registered), and combining sentences – the least (7 instances).

Although the frequency of use of different sub-strategies varied within the larger category units, overall, participants mostly modified the lexical and/or syntactic forms in the academic texts (68.58% of the strategies), while cohesion features were modified the least (6.17% of the strategies). The sub-strategies in Figure 1 below are ordered from less to more frequent within each strategy.
We further explored descriptive statistics of the relative frequency of use of the sub-strategies elicited in this study between participants in the three language groups. A descriptive summary of each sub-strategy use by each group is presented in Table 3 below.

### Table 3
Text simplification strategy use per language group.

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Sub-strategy</th>
<th>n of participants contributed</th>
<th>% of total codes</th>
<th>Spanish Average</th>
<th>SD</th>
<th>Chinese Average</th>
<th>SD</th>
<th>Russian Average</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Form modifications</td>
<td>Change word frequency</td>
<td>24</td>
<td>34.71</td>
<td>26.38</td>
<td>15.20</td>
<td>18.75</td>
<td>11.59</td>
<td>16.75</td>
<td>13.02</td>
</tr>
<tr>
<td></td>
<td>Convert into SVO order</td>
<td>21</td>
<td>7.92</td>
<td>4.75</td>
<td>4.89</td>
<td>5.63</td>
<td>5.90</td>
<td>3.75</td>
<td>1.66</td>
</tr>
<tr>
<td></td>
<td>Split sentence</td>
<td>23</td>
<td>6.52</td>
<td>3.50</td>
<td>2.5</td>
<td>4.25</td>
<td>3.45</td>
<td>3.88</td>
<td>2.74</td>
</tr>
<tr>
<td></td>
<td>Convert passive into active</td>
<td>18</td>
<td>6.31</td>
<td>6.13</td>
<td>7.56</td>
<td>2.38</td>
<td>4.27</td>
<td>2.75</td>
<td>1.75</td>
</tr>
<tr>
<td></td>
<td>Compress meaning</td>
<td>20</td>
<td>6.10</td>
<td>5.00</td>
<td>3.11</td>
<td>2.63</td>
<td>3.70</td>
<td>3.25</td>
<td>2.05</td>
</tr>
<tr>
<td></td>
<td>Add emotional emphasiser</td>
<td>10</td>
<td>2.88</td>
<td>2.00</td>
<td>2.07</td>
<td>1.38</td>
<td>1.76</td>
<td>1.75</td>
<td>1.66</td>
</tr>
<tr>
<td></td>
<td>Convert noun into verb</td>
<td>13</td>
<td>1.40</td>
<td>1.25</td>
<td>2.05</td>
<td>0.75</td>
<td>1.75</td>
<td>0.50</td>
<td>0.53</td>
</tr>
<tr>
<td></td>
<td>Break the noun phrase</td>
<td>9</td>
<td>1.33</td>
<td>1.25</td>
<td>1.90</td>
<td>1.00</td>
<td>1.06</td>
<td>0.13</td>
<td>0.35</td>
</tr>
<tr>
<td></td>
<td>Split paragraph</td>
<td>7</td>
<td>0.91</td>
<td>0.63</td>
<td>1.18</td>
<td>0.63</td>
<td>1.18</td>
<td>0.38</td>
<td>1.06</td>
</tr>
<tr>
<td></td>
<td>Combine sentences</td>
<td>6</td>
<td>0.49</td>
<td>0.25</td>
<td>0.70</td>
<td>0.50</td>
<td>0.53</td>
<td>0.13</td>
<td>0.35</td>
</tr>
<tr>
<td>Content modifications</td>
<td>Cut information</td>
<td>24</td>
<td>15.15</td>
<td>11.63</td>
<td>7.38</td>
<td>6.63</td>
<td>9.33</td>
<td>8.75</td>
<td>4.92</td>
</tr>
<tr>
<td></td>
<td>Add clarification</td>
<td>21</td>
<td>10.01</td>
<td>7.00</td>
<td>7.12</td>
<td>6.75</td>
<td>4.33</td>
<td>4.26</td>
<td>3.15</td>
</tr>
<tr>
<td></td>
<td>Add logical connectives</td>
<td>19</td>
<td>3.72</td>
<td>2.38</td>
<td>2.06</td>
<td>2.25</td>
<td>2.55</td>
<td>2.00</td>
<td>1.60</td>
</tr>
<tr>
<td></td>
<td>Change order of ideas</td>
<td>11</td>
<td>1.33</td>
<td>0.38</td>
<td>0.74</td>
<td>1.38</td>
<td>1.40</td>
<td>0.63</td>
<td>0.83</td>
</tr>
<tr>
<td></td>
<td>Resolve pronoun</td>
<td>10</td>
<td>1.12</td>
<td>0.50</td>
<td>0.75</td>
<td>0.63</td>
<td>1.40</td>
<td>0.88</td>
<td>0.83</td>
</tr>
</tbody>
</table>

Note: total number of participating English teachers $N = 24$.

As can be seen from Table 3, although some sub-strategies only constitute a very small proportion of the total, these were common (sub-) strategies used by our sample of 24 EFL teachers across the three L1 groups. Therefore, these strategies are likely to represent common strategies used by EFL teachers to simplify texts, rather than constitute individual behaviour.

This section will next provide a qualitative account of the different strategies to text simplification employed by participating teachers.

#### 4.1.1. Form (lexico-syntactic) modifications

The most commonly used strategy to text simplification, which accounted for more than half of the modifications participants made in the authentic texts, was modifying the lexical and/or syntactic forms. The sub-strategies within this strategy mostly concerned the facilitation of the literal understanding of the text and included sub-strategies aimed at making lexical modifications (changing word frequency, adding emotional emphasisers), abridging the lexical and/or syntactic forms (splitting long sentences and paragraphs, compressing meaning, breaking the noun phrase, and combining sentences), changing the word order in the sentence, changing the voice (passive/active) and converting nouns into verbs.

The word frequency sub-strategy implied replacing a word or a word combination with the synonymous expression more familiar to learners or with what a teacher felt was more common word(s) in the language (e.g., replacing ‘voyages’ in the original text with ‘journeys’ in simplification), as was done by one of the participating teachers in (1) below.

(1) Original: Before the 19th century, one of the hazards of long sea voyages was a condition called scurvy...

Simplified: Before the 19th century, one of the difficulties of long sea journeys was a disease called scurvy.

When using the word frequency sub-strategy, participants talked about choosing words, based on their intuition, that are more commonly used in English. Among the reasons participants gave for employing this strategy was the idea that even a handful of unknown words in the text can discourage learners from continuing to read the text and learn from it.

Bai (Chinese): ‘He died disillusioned’ confused me very much, even for me as a teacher I never saw the usage like this. I wasn’t even sure if he died because there is another meaning for ‘died’ like ‘dying for’, it might mean ‘he loved something’. Then I looked up ‘disillusioned’, and I changed it into ‘disappointed’, which is a more common word in English.

Lidia (Russian): And also, the last word of the text, ‘quantities’, I’ve changed to ‘amount’. Just by instinct, I thought ‘amount’ might be easier. And ‘quantities’ – I think they probably don’t know the word.

Another type of lexical modification made in simplification, although less often employed than changing the word frequency, was adding emotional emphasisers in the simplified texts. As part of this sub-strategy participants either added or replaced an original word with a lexical item expressing attitude towards or feelings about the entities or propositions discussed in the text, as in (2) below.

(2) Original: I think they probably don’t know the word.

Simplified: I think they probably don’t know the word **–** I think they probably don’t know the word.

In simplification, as was done by one of the participating teachers in (1) below.
The reasons participants provided for adding emotional emphasisers in simplification were to help learners relate more to the text, make certain items of the text more salient and attract learners’ attention to them.

Interviewer: The next change is you split the sentence and added ‘great’ to discovery.

Evgeniya (Russian): Oh, I didn’t even notice [laughter]. I don’t know why I added ‘great’ – something personal, subconscious. I think this is how I understood the text and wanted to emphasise that Lind’s discovery was a breakthrough. Because I also performed a sentence split, the new sentence starts with ‘He found that’, which allowed me to attract students’ attention once again to the fact that Lind discovered something.

At the same time, the emotional emphasiser sub-strategy was, in part, motivated by the use of the word frequency sub-strategy described above. The words of perceived higher frequency might not have the same connotations as the words in the original text, and using emotional lexics helped teachers maintain those connotations and further enhance them (e.g., ‘died disillusioned’ vs. ‘died with great disappointment’ in simplification; ‘hazards’ vs. ‘worst dangers’).

Maria (Spanish): I changed ‘hazards’ not just into ‘dangers’ but ‘worst dangers’ in my simplification. For me, ‘hazard’ is more than ‘danger’. I just tried to emphasise the fact that ‘scurvy’ is a very serious disease that used to happen to sailors during long sea voyages, and it was very, very dangerous.

Besides lexical modifications, another set of sub-strategies used in the form modifications category was presenting the ideas in the academic texts in smaller units by abridging the lexical and/or syntactic forms. Participants often referred to the length of sentences and paragraphs as the aspect of the text that can cause difficulty for learners. Participating teachers tended to split sentences with more than two clauses, see (3) below; and cut the length of long paragraphs.

The rationale behind sentence and paragraph split was to help learners unpack and separate the layers of meaning and, thus, identify the main idea of each sentence faster. Sentence split was identified by participants as an especially important strategy for the opening sentences of the text, as such sentences set the tone of the text. This sub-strategy was also employed in the instances when a sentence contained a key word for the topic of the text and a full stop would give a chance for learners to rest and process that word. Another reason participants voiced for shortening sentences and paragraphs was the attempt to avoid overloading learners’ working memory with too many ideas.

Alla (Russian): The rhythm of life has become faster, more dynamic. Not many people will take the effort to read a long sentence or structure. I feel like this is the general tendency even when reading in the native language. Not many people are capable of and/or want to read texts where one sentence is half a page long.

Compressing meaning or expressing the same idea using fewer words was another abridging sub-strategy often employed by participating teachers in the form modifications category (e.g., ‘act where the law permits’ in the original vs. ‘act within the law’ in simplification); see (4) below for another example.

As with splitting long sentences and paragraphs, the rationale for compressing meaning was to speed up learners’ processing of the academic text and attract their attention to the text’s core idea.

Breaking the noun phrase refers to the instances where participants placed words describing the main noun in the postposition of the noun phrase (e.g., ‘sea voyages’ in the original text vs. ‘travelling on sea’ in simplification); see (5) below for another example.

Participants talked about wanting to help learners identify the key word in each phrase faster and, thus, take in the ideas in the text in smaller segments. One participant in the sample further stated that their motivation for abridging the noun phrase was driven by their awareness of how often this grammar structure is practised in EFL classes with low-proficiency learners.
Lucia (Spanish): For them at this level, the possessive… you know when I was younger and I was learning English at school, it was called ‘The Saxon Genitive’, I don’t know if you’ve ever heard about that? And now it’s just called ‘The Possessive’. So, my learners are used to using the possession with people, like ‘Maria’s book’. They would be lost with ‘society’s most complex issues’.

The final abridging sub-strategy used by the participating teachers was combining sentences. It involved merging two sentences in simplification, as in (6) below.

(6) Original … social workers do not make decisions … alone. Their judgements are made in conjunction with…
Simplified Social workers do not make decisions… alone, but they do it together with…

While this was the least used sub-strategy to simplify academic texts, participating teachers followed this sub-strategy in the instances where they identified that the idea of two consecutive sentences was similar and combining them would help avoid redundancy. As with the abridging sub-strategies described above, participants believed that this sub-strategy helps speed up text processing.

YingFei (Chinese): I combined the two sentences, because I think, the meaning of these two is tighter, they’re closely related, and they’re equally important according to the original meaning.

The remaining three sub-strategies within form modifications – ‘Converting into SVO order’, ‘Converting passive into active’, and ‘Converting noun into verb’ – concerned using more active structures with a clear agent in the simplified academic texts. For example, the ‘passive into active’ sub-strategy allowed participating teachers to avoid passive voice structures in simplification; see (7) below.

(7) i. Original … before their detailed chemical structures were known…
Simplified … before scientists knew about their chemical structures…
ii. Original They are generally still referred to by that letter, as well as by their chemical name…
Simplified We still call them by that letter, as well as by their chemical name…

Converting into SVO order involved making the subject of the clause or sentence more pronounced by removing impersonalized subjects (e.g., ‘it’, ‘there’) and replacing them with subject-verb-object (SVO); see (8) below.

(8) Original There often seems to be an unrealistic expectation of omniscience, when in fact social workers can only work with the information and resources available to them.
Simplified People expect social workers to have superpowers, when in fact they can only work with the information and resources available to them.

Converting noun into verb involved reducing the average number of noun elements in the sentence (e.g., ‘in discussion with’ vs. ‘discuss with’); see (9) below.

(9) Original … and especially the media – in the shape of newspapers, radio and television – demonstrate little understanding of the complexity of the social work task.
Simplified … and especially the media – newspapers, radio and television – understand little how complex the social work task is.

Among the reasons participants gave for using these three sub-strategies was the idea that putting a clear agent into the focus of the clause helps learners integrate that clause into the meaning-making of the sentence and reminds them what the sentence is about.

Heng (Chinese): In the simplified version, I used ‘they will die in the end’ instead of the original ‘whose symptoms were… eventually death’. In the original sentence, there can be a question ‘whose death’? And in the simplified version, we change it with the exact subject ‘people, they’. I once more emphasised who does the action. I think it’s easier for them to understand if the structure is subject-verb-object.

Diego (Spanish): I used verbs ‘lose’, ‘bleed’ and ‘heal’ in my simplification instead of the original ‘loss’, ‘bleeding’, ‘healing’. In general, I try to use verbs plus nouns to modify nouns to indicate an action, I seldom use clusters of nouns. It’s hard in that case to identify who modifies who and besides the verb stresses the actual action.

4.1.2. Content modifications

The second most commonly used strategy to simplify texts among participants was making content modifications. In contrast to the form modifications strategy, which focused on the literal meaning of the text and aimed to leave the content of the text largely intact, the content modifications strategies mainly dealt with the implicit meaning and involved editing the information in the text.

The first sub-strategy within this category, cutting information, concerned removing redundancy in the text that participants judged as not helpful to understanding. Participants cut items from the text, and in some instances – whole clauses – where they identified these items as not key in understanding the meaning of the sentence or as repetitive, as in (10) below.
4.1.3. Cohesion modifications

The final and the least frequently used strategy to simplify academic texts across the sample was modifying text cohesion features within/between sentences. The three sub-strategies that were used within this category were adding logical connectives, resolving pronouns, and changing the order of ideas in the simplified texts.

The first two sub-strategies listed above were aimed at improving cohesion between sentences. Adding logical connectives was the most popular sub-strategy within the cohesion modifications category. Most such linkers added to the simplified texts elaborated on the causal relationships in the text (e.g., ‘therefore’, ‘that is why’, ‘so’), and indicated succession (e.g., ‘first’, ‘second’, ‘this led to the fact that’), a few added connectives highlighted contrast (‘but’, ‘however’); see (12) below.

Evgeniya (Russian): I removed the whole thing after the dash and rather left ‘especially’ – ‘Politicians and especially the media’. It is clear without this listing that ‘newspapers, radio and television’ are the media. I feel like it’s the same story as when writers get paid per number of words they’ve written. They then try to be as verbose as possible.

Heng (Chinese): I feel that sometimes they [learners] are too obsessed with meaning. They keep asking, ‘What does it mean? What does it mean?’ Even though it’s not related and does not bring anything important to the text.

A contrasting sub-strategy to removing and cutting information from the text was to add more information which elaborated on key points in the text. Adding clarification mainly involved giving more context to understand a concept described in the sentence. Within this sub-strategy, participants provided definitions and examples to certain terms (e.g., ‘fat-soluble vitamins’ in the original text vs. ‘fat-soluble vitamins (e.g., vitamin A)’ in simplification). These elaborated definitions concerned the items participants found important for the learners to know and which they determined highly relevant to the topic of the text (e.g., defining ‘scurvy’ in the text about the discovery of vitamins). Another reason for employing this sub-strategy was to provide more context for the instances in the text which were not explicitly described, but which participants found important for understanding the text. As emphasised by participants, such instances in the original text would make learners take considerable effort to access their meaning. The examples in (11) below illustrate how ‘adding clarification’ sub-strategy was used in the simplification of two participating teachers.

Nai (Chinese): I added an extra word ‘help’ to complete the idea of the sentence. In the original, we have ‘X could prevent the condition, whereas Y could not’, and students may feel puzzled – ‘couldn’t do what?’ So, it’s hard for the students to figure out that ‘could’ refers to ‘prevent’.

Interestingly, as part of ‘Adding clarification’, some participants added time references, such as ‘today’, to the simplified texts (e.g., ‘they are generally still referred to by that letter’ in the original text vs. ‘today, we still call them by that letter’ in simplification). The rationale participants gave for doing this was the idea that low-proficiency learners are used to seeing time references quite often and might expect to see them in the text. According to participants, time references make the text less abstract and help learners position it in time and space.

Kristina (Russian): I added the time reference ‘nowadays’ to the opening sentence to create a familiar start for the students. When I was an English learner and was reading texts in English, I found it easier to read texts that start with something familiar like a time reference, which I understood really well on my level of language proficiency. I think I even had expectations of how texts should be structured.

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Original ... although he tried to restrict the types of food eaten by a group of volunteers to attempt to produce scurvy in them, he was unable to do so...
Simplified ...Although he tried to produce scurvy in a group of volunteers by restricting the types of food they ate, he failed.
Participants explained that adding logical connectives helps to connect the sentences, and it makes the logical relations between the sentences more explicit. Thus, it should help learners better integrate these sentences into the overall meaning framework of the text. Many participants indicated that the usage of the logical connectives sub-strategy was motivated by sentence splitting, described above, which they often employed to simplify academic texts. Participants wanted to ensure that the resultant simplified text would not lack coherence in terms of its thematic progression.

Heng (Chinese): Since I divided this sentence, the shorter sentence lost connection to the previous one. But by adding a linker, I give a reference to the previous sentence. So, I help my students understand what the link is between the sentences, and the linker is not difficult.

Pronoun resolution was another sub-strategy used within the cohesion modifications category and refers to the instances where participants replaced the pronoun with the corresponding noun in the authentic text (e.g., ‘those at sea’ in simplification; ‘he’ vs. ‘the scientist’); see (13) below.

(13) Original They do, however, have significant power given to them by law, and this has to be exercised ethically.
Simplified The law gives social workers significant power, but they need to exercise this power ethically.

The rationale behind this strategy was also the idea that a more cohesive text with evident links between the agents in different sentences contributes to an easier and faster understanding of the text. Pronoun resolution concerned not only the replacement of personal pronouns but also relative and possessive pronouns with their corresponding nouns.

Diego (Spanish): Anaphoric analysis is always difficult. And, besides, here this anaphora is used in the 3rd paragraph, the student might be tired having coped with two paragraphs already. And here again a trap is awaiting him/her. The student needs to understand what ‘their’ refers to.

The remaining sub-strategy within the strategy of making cohesion modifications – changing the order of ideas in the simplified texts – aimed to improve the links within sentences. This sub-strategy involved repositioning the clauses in the sentence to help learners better understand the logical development of the text and the sequence of ideas described in it, as in (14) below.

Lidia (Russian): I disagreed with the author in the development of the logic of the sentence in the original text. Because the aim is confused with the means. What did Lind try to actually do? He wanted them to get scurvy. And for that he restricted the types of food. I wanted to deliver the information to the learner in a more straightforward way. Here the main idea is – ‘he tried to produce scurvy’, ‘he failed’, and in the middle – ‘he tried through what means’. The simplified text makes the link between the ideas and their development clearer.

4.2. Simplification task as a reflection exercise

Quite a few participants mentioned that even though they were EFL teachers by training, they did not learn simplification strategies as EFL pre-service teachers. Participating in this study’s interview and performing a simplification task was reported by participants as a helpful exercise to reflect on their own practices of reading comprehension instruction.

Evgeniya (Russian): It’s interesting to take part in this interview, because I always do these things intuitively. I never follow a list of the complexity parameters.

María (Spanish): But when I did my first simplification when I was a student, the idea wasn’t to simplify a text but to adapt it to teach a grammar structure. Now I remember, I wasn’t simplifying a text, I never did that before as a student. It was a nice experience that made me think about what I do as an experienced teacher.

Participants reflected on the fact that assessing language complexity of a written text is an indispensable part of their day-to-day job. It involves working through the assigned reading before the class to apprehend how difficult the text might be for their learners, and what elements in it might be particularly difficult for them. Interestingly, none of the teachers mentioned using the structural approach (traditional readability formulas and predefined word lists) to adapt texts in their teaching practice. One participant stated that having worked with graded materials before, which ‘tell us what vocabulary or structures we should use in a certain level of CEFR’ (Diego, Spanish), he learnt how to ‘recognise these structures’ in a given text and, thus, assess its complexity. Several EFL teachers referred to using their own experience as non-native speakers of English, when they were early career teachers, to benchmark the kinds of difficulties their learners would be facing in the text. A few other teachers mentioned ‘piloting’ the text when teaching across several groups of learners at a similar level of English proficiency and learning from observing the difficulties those learners experienced with the text.
In English. Our study supported the among experienced EFL teachers from diverse language backgrounds as to what constitutes a more accessible academic text.

This study is that despite this reliance on subjective approximations of comprehensibility, there is a shared understanding and their priority of use.

Many participants referred to the teachers’ ability to perform comprehension mediation, help learners relate to the text and bring these texts to the level of learners’ language proficiency as the essence of teaching.

This study identiﬁed 15 sub-strategies that were categorised into three general text simpliﬁcation strategies. Results showed that the most common strategy to simplify academic texts across the sample was modifying lexical and/or syntactic forms and facilitating learners’ literal understanding of the text. Our study also showed that exchanging words with ones that the teachers felt were more frequently used in English was key to intuitive text simpliﬁcation, taking up almost 40% of all sub-strategies used to simplify academic texts. This is in line with the study of Crossley et al. (2012), where the majority of the differences between authentic and simpliﬁed texts were found to be lexical in nature. Earlier studies with subject teachers also identiﬁed that rewording or replacing words with synonymous terms or expressions more familiar to students was perceived by the teachers as the most important type of modiﬁcations (Basturkmen & Shackleford, 2015; Glass & Oliveira, 2014). Such an inclination towards simplifying lexis in intuitive text simpliﬁcation can be supported by a sizeable body of vocabulary research, which showed that there is a relatively linear relationship between the percentage of vocabulary known by the learner and the degree of their text comprehensibility (e.g., Hsu, 2014; Schmitt et al., 2011). Learners need to know 95%–98% of the words in the text to be able to understand 70% of the information in it (Bi, 2020). Our study further showed that besides changing the word frequency, another type of lexical modiﬁcation used in simpliﬁcation was adding emotional emphasises in the simpliﬁed texts. This is an interesting ﬁnding in light of the evidence that EFL learners generally report feeling more distant to what they read in English, as compared to reading in their L1 (Iacozza et al., 2017). This sub-strategy to help EFL learners relate more to the text might represent teachers’ attempt to increase learners’ situational interest in the text, a short-lived psychological state of focused attention, curiosity, and positive affect (Soemer & Schiefele, 2019). Since it is known that more difﬁcult texts are perceived by readers to be less interesting, and less interest, in turn, is associated with reduced focus of the readers towards the text (Soemer & Schiefele, 2019), adding emotional emphasises elicited in this study might help alleviate this challenge in simpliﬁed texts.

Our study further showed that as part of modifying lexical and/or syntactic forms, participating teachers also employed a series of abridging sub-strategies, and sub-strategies aimed at using more active structures with a clear subject in the simpliﬁed texts. This result complements the ﬁndings of corpus studies on grammatical simpliﬁcation, which showed that the use of noun phrases and complex phrases within a single sentence is characteristic of an advanced stage of language development, and such structures might be avoided when preparing materials for lower levels (e.g., Biber et al., 2011; Lan et al., 2022). Although these sub-strategies have not been featured in the previous studies with teachers (e.g., Basturkmen

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_Bai (Chinese):_ I don’t have a standard procedure, but I definitely look through the text beforehand. I trust my experience. If there is anything in the text that I myself ﬁnd difﬁcult, like, I need to read something in the text twice to be able to understand it – so then my students will deﬁnitely ﬁnd it difﬁcult.

_Alla (Russian):_ I see the people I am working with ﬁrst as people who should enjoy the reading process, and only then as students. I know that if they stumble over an unnecessary complexity of the text – they will neither enjoy the text nor will there be any outcome of reading it. Everyone will get stuck at the difﬁcult elements.

Many participants referred to the teachers’ ability to perform comprehension mediation, help learners relate to the text and bring these texts to the level of learners’ language proficiency as the essence of teaching.

_Evgeniya (Russian):_ Trying to match the language level of educational materials with the proficiency level of the students – I think that’s the idea of teaching. I always try to do that. That’s what makes learning effective.

_Maya (Spanish):_ Simply because a text is published – is it good? Not really. You have texts published all the time that aren’t too good. Editing is an important part of my teaching.

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5. Discussion

This study was inspired by the fact that research on language teachers’ approaches to simplifying academic texts is limited. There is a lack of support for the text adaptation process (Crossley et al., 2012; Jin & Lu, 2018), while there is a need for teachers in various areas of instruction to be able to simplify the reading materials for their learners (Coxhead & Bouterwick, 2018; Galloway et al., 2017). For example, in ESP areas, students need to learn how to enhance the accessibility of their future professional communication (Ishihara & Prado, 2021). To that end, and since EFL teaching is the most immediate context in which reading materials are simpliﬁed, we explored EFL teachers’ practices of making academic texts in English more accessible to low-proficiency EFL learners. This enabled us to unpack the kind of processes involved in intuitive simpliﬁcation and their priority of use.

In contrast to a structural approach to text simpliﬁcation, an intuitive approach is, by its nature, more subjective and depends solely on the author’s natural sense of text comprehensibility (Allen, 2009; Crossley et al., 2012). The key ﬁnding of this study is that despite this reliance on subjective approximations of comprehensibility, there is a shared understanding among experienced EFL teachers from diverse language backgrounds as to what constitutes a more accessible academic text in English. Our study supported the ﬁndings of earlier research, which described intuitive text simpliﬁcation as rich and multifaceted, involving multiple processes that extend the traditional ways of simplifying texts based on readability (Allen, 2009; Crossley et al., 2011). Our analysis of the teachers’ rationale for the use of the different simpliﬁcation sub-strategies further showed that intuitive text simpliﬁcation is a creative process in which a teacher becomes a co-author of the reading material they provide to learners.

This study identiﬁed 15 sub-strategies that were categorised into three general text simpliﬁcation strategies. Results showed that the most common strategy to simplify academic texts across the sample was modifying lexical and/or syntactic forms and facilitating learners’ literal understanding of the text. Our study also showed that exchanging words with ones that the teachers felt were more frequently used in English was key to intuitive text simpliﬁcation, taking up almost 40% of all sub-strategies used to simplify academic texts. This is in line with the study of Crossley et al. (2012), where the majority of the differences between authentic and simpliﬁed texts were found to be lexical in nature. Earlier studies with subject teachers also identiﬁed that rewording or replacing words with synonymous terms or expressions more familiar to students was perceived by the teachers as the most important type of modiﬁcations (Basturkmen & Shackleford, 2015; Glass & Oliveira, 2014). Such an inclination towards simplifying lexis in intuitive text simpliﬁcation can be supported by a sizeable body of vocabulary research, which showed that there is a relatively linear relationship between the percentage of vocabulary known by the learner and the degree of their text comprehensibility (e.g., Hsu, 2014; Schmitt et al., 2011). Learners need to know 95%–98% of the words in the text to be able to understand 70% of the information in it (Bi, 2020). Our study further showed that besides changing the word frequency, another type of lexical modiﬁcation used in simpliﬁcation was adding emotional emphasises in the simpliﬁed texts. This is an interesting ﬁnding in light of the evidence that EFL learners generally report feeling more distant to what they read in English, as compared to reading in their L1 (Iacozza et al., 2017). This sub-strategy to help EFL learners relate more to the text might represent teachers’ attempt to increase learners’ situational interest in the text, a short-lived psychological state of focused attention, curiosity, and positive affect (Soemer & Schiefele, 2019). Since it is known that more difﬁcult texts are perceived by readers to be less interesting, and less interest, in turn, is associated with reduced focus of the readers towards the text (Soemer & Schiefele, 2019), adding emotional emphasises elicited in this study might help alleviate this challenge in simpliﬁed texts.

Our study further showed that as part of modifying lexical and/or syntactic forms, participating teachers also employed a series of abridging sub-strategies, and sub-strategies aimed at using more active structures with a clear subject in the simpliﬁed texts. This result complements the ﬁndings of corpus studies on grammatical simpliﬁcation, which showed that the use of noun phrases and complex phrases within a single sentence is characteristic of an advanced stage of language development, and such structures might be avoided when preparing materials for lower levels (e.g., Biber et al., 2011; Lan et al., 2022). Although these sub-strategies have not been featured in the previous studies with teachers (e.g., Basturkmen
& Shackleford, 2015; Green & Hawkey, 2012), and they have not appeared as a single inventory, they have been demonstrated to relate to text comprehension and characterise easier texts (e.g., Allen, 2009; Crossley et al., 2012; Tickoo, 1993). The finding of this study that these strategies were actively used by EFL teachers in their simplification provides additional evidence that EFL teachers are an expert population on the topic.

Another finding of this study is that a substantial amount of EFL teachers’ modifications in the text (25.16%) concerned content modifications – cutting information in the text to remove redundancy and adding clarifications to elaborate on certain points in the text. In the latter case, such elaborations concerned providing definitions of the key terms and making the information presented in the text less ambiguous. We further found that in some instances time references were among the items added to the text, with the purpose of creating similarity between academic texts and the learning texts used in the language classroom. The need to employ this sub-strategy also echoes the need for the ‘word frequency’ sub-strategy. Since teachers reported that learners were concerned with the meaning of every word in the text, they could be adding time references to further mark the difference of verbs in the present and past tense and clarify the meaning of these verbs for the learners.

Both of these sub-strategies – reduction and supply or expansion of information – have been described in previous studies as the processes involved in intuitive text simplification (Allen, 2009; Basturkmen & Shackleford, 2015; Glass & Oliveira, 2014). Our study provided additional evidence on EFL teachers’ rationale for employing such sub-strategies, which suggest counter action. EFL teachers’ choices of cutting or adding information were guided by their decisions on the importance of the information they encountered in the text.

A few studies on text simplification (e.g., Allen, 2009; Long, 2020) raised concerns that sentence splitting and information reduction may considerably affect text cohesion, and the resultant simplified text will contain short, choppy, disconnected sentences ‘creating an irritating, breathless, staccato effect’ (Long, 2020, p.172). This study found that EFL teachers made cohesion modifications to simplify academic texts to remedy sentence splitting and clarify the logical development of the text. Accounting for cohesion factors in the text simplification research is a relatively recent trend, which was ignored in traditional, structural simplification approaches (e.g., Tickoo, 1993). Despite the demonstrated importance of text cohesion for reading comprehension (Crossley et al., 2016; Reed & Kershaw-Herrera, 2016), making cohesion modifications was not highlighted in the previous research involving teachers (Basturkmen & Shackleford, 2015; Glass & Oliveira, 2014; Green & Hawkey, 2012). This study showed that participating EFL teachers were aware of the strategies concerning cohesion. Although this was the least used strategy across the sample (6.17%), participants did employ these strategies when simplifying academic texts.

Finally, we also found that while being trained language teachers, participants in this study reported that they had not learned simplification strategies as EFL pre-service teachers, they mainly relied on their intuition when adapting the texts, and the simplification exercise helped them reflect on their reading comprehension instruction practices. At the same time, selecting materials, assessing their language complexity, and alleviating this complexity through intuitive simplification are daily activities of an EFL teacher. In light of the latest research evidence, which suggests that learning to adapt materials is ‘still illusive’ in most teacher education programmes (Carabantes & Paran, 2022, p. 2), our findings provide strong implications for training novice teachers and increasing their awareness of the simplification strategies teachers with extensive experience use implicitly.

6. Pedagogical implications

As evidenced in previous research on the effects of intuitive text simplification (e.g., Allen, 2009; Crossley et al., 2012; Iacozza et al., 2017), the sub-strategies identified in this study are related to text comprehension and linguistic accessibility, which demonstrates the profound knowledge experienced EFL teachers have on the topic. These strategies can be summarised to the points below, each point is illustrated with one or two simplification examples:

1. Choose vocabulary that has more common usage in English. 
   E.g., replace ‘kin’ with ‘family’, ‘unmistakable’ with ‘correct’

2. Use shorter sentences and paragraphs. 
   E.g., split long sentences and paragraphs

3. Put a clear agent into the focus of each sentence in the text. 
   E.g., change ‘it appears that these people’ to ‘these people appear...’; ‘advice is available in the office’ to ‘you can get advice from the office’

4. Avoid noun clusters, use more verbs in the text. 
   E.g., change ‘we had a discussion’ to ‘we discussed’; ‘long sea journey’ to ‘long journey at sea’

5. Use concise structures, remove unnecessary redundancy, and repetition. 
   E.g., change ‘act where the law permits’ to ‘act within the law’; ‘before you start needing...’ to ‘before you need...’

6. Elaborate on the points in the text, which are stated implicitly, and which are essential for the meaning-making of the text. 
   E.g., change ‘social work service-user’ to ‘person in need of social services’

7. Add words with emotional connotations and time references to help the reader relate to the text. 
   E.g., change ‘died disillusioned’ to ‘died with great disappointment’; ‘vitamins are still called...’ to ‘these days vitamins are still called...’

8. Add logical connectives and links between sentences.
It is important to note that the simplification sub-strategies elicited in this study form an interconnected system of acts of simplification made in the original texts and should not be used in isolation from each other. For example, as mentioned earlier, the use of the ‘sentence splitting’ sub-strategy, in part, motivated teachers to add logical connectives to ensure that simplified texts do not lose cohesion links as a result of shortening sentences. Similarly, adding emotional emphasisers helped teachers maintain and further enhance the lexical connotations that might have been lost as a result of using the word frequency sub-strategy.

In light of the reported lack of support for simplifying texts (Crossley et al., 2012; Jin & Lu, 2018) and the fact that teachers mainly rely on intuitive approach to help learners with material comprehension, novice teachers in both general and specific English teaching settings can benefit from the text simplification inventory, developed in this research, given their lack of teaching experience. Furthermore, we argue that such guidelines can be particularly useful for EMI teachers, both pre- and in-service, as they receive little language training and report being left on their own to support students with different proficiencies in English (Doiz & Lasagabaster, 2021; Farrell, 2020). In addition to providing novice teachers with the text simplification guidelines, we further suggest that a text simplification exercise, such as the one used in this study, where teachers read the text and rewrite it in a simplified way, followed by a reflection session on the modifications they have made, can be useful in teacher training programmes and peer discussion sessions. Previous research suggests that teachers should be able to think about and reflect upon their own teaching practices (e.g., Jin & Lu, 2018; Rets et al., 2020). In light of the findings of this study on the pedagogical value of the text simplification exercise, this activity has the potential to enhance novice teachers’ understanding of comprehensibility features and enable the development of the kind of ‘self-awareness, self-discovery, and personal internalisation’, which would lead to a greater teaching efficiency (Basturkmen & Shackleford, 2015, p. 95).

7. Conclusion

Few studies give a comprehensive account of how teachers approach a task of making academic texts in English more accessible to non-native speakers of English. Moreover, while language teachers constitute an expert group on the topic, there is a lack of research on language teachers from diverse language backgrounds simplifying academic texts. This study provided a definition and rationale for the use of different intuitive simplification strategies, as employed by EFL teachers, and examples of how these strategies were implemented and which strategies were used more regularly.

Due to the small sample size and the focus on the qualitative analysis insights in this study, no comparative statistics have been conducted with the frequencies of use of the elicited simplification strategies between the three L1 groups. Although our results showed that each sub-strategy was present in the simplification of the teachers from all the L1 groups that the study controlled for; it would be interesting to obtain further evidence on how, why or why not the L1 influences the processes involved in intuitive text simplification.

As described earlier, the strategies put together in this study have been tested with EFL learners with different L1s (Rets & Rogaten, 2021). The emerging evidence in Rets and Rogaten (2021) demonstrated the effectiveness of this simplification inventory for the non-native-speakers of English at lower levels of English proficiency reading academic texts. Future research should test these strategies further with students in other English language instruction areas, where there is a need to support teachers with simplifying academic materials or explaining approaches to accessible English.

Data availability

Data will be made available on request.

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