



## **Revisions, Resource Consultations and Their Interplay: A Study of L2 Student Writers**

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### **Abstract**

Revisions and the consultation of resources are both central components of L2 student writing and essential elements in developing writing skills. In this study we aim to create insights into the writing practices of L2 student writers by exploring textual revisions and digital resource consultations, and their possible interplay. Such insights will benefit researchers and teachers in the field of second language writing and can eventually be used to support L2 students in improving their writing skills. The revisions and external resource consultations of four Danish second-year university students during the writing of a Spanish press release were captured using screen recording software and later analysed manually. Results suggest that revisions of form were far more common than revisions of content indicating that the students succeeded in generating suitable content, which did not often require revision. Results also indicate that students, by far, preferred to consult the traditional online bilingual dictionary as an external resource. This suggests that the most common problems were lexical in nature. Moreover, almost one fifth of the revisions were carried out after consulting external resources which suggests that the students frequently demonstrated the capacity to solve the problems solely by means of internal resources.

**Keywords:** *L2 writing; student writing; revision; resource consultation; content revision; form revision; bilingual dictionary*

### **Introduction**

The history of writing research has been marked by different perspectives on writing, (e.g. Nystrand, 2006) which are epistemologically and methodologically distanced from each other (e.g. Berkenkotter, 1991). The first studies into writing perceived text production as a linear plan-write-rewrite activity, in which writers first planned what they were going to write, then they wrote a draft, which they then revised. In this sense, revision was “what the writer does after a draft is completed” (Murray, 1978, p. 87), a statement which was also reflected in the concepts employed by Rohman & Wlecke (1964): ‘Pre-writing’, ‘Writing’ and ‘Re-writing’, and Murray (1978): ‘Prevision’, ‘Vision’ and ‘Revision’. However, later research demonstrated that text production is more likely to be an intricate, recursive activity drawing on hierarchically organised cognitive processes (e.g. Flower & Hayes, 1981) involving planning, generating, formulating, evaluating, and revising, which writers orchestrate during writing “to progressively create a text that meets their

conception of topic, task and audience” (Lindgren & Sullivan, 2006a, p. 32). The way in which writers orchestrate the processes varies as a function of the level of proficiency, among other aspects. To account for differences between novice writers and expert writers, Bereiter & Scardamalia (1987), describe two strategies, extremes of a continuum, i.e. *knowledge telling* and *knowledge transforming*. In *knowledge telling*, less skilled writers present their knowledge on a topic without reorganising or adapting the knowledge nor the linguistic form of the text to the audience and the discourse (Bereiter & Scardamalia, 1987, p. 22). By contrast, in *knowledge transforming*, expert writers engage in more complex problem-solving processes whereby knowledge is revised and transformed (Bereiter & Scardamalia, 1987, p. 10), and the text is tailored to the audience and the discourse (Alamargot & Chanquoy 2001, 6). The two strategies were developed to describe the different processes involved in L1 writing, but writing in a foreign language is often more complex and constrained because writers frequently need to translate their ideas formulated in their mother tongue into the target language, thus adding additional actions in particular to the process of formulating (Stapleton, 2010, p. 296). The recursivity of writing and the hierarchical structure of the processes suggest that revision is not (only) “an end-of-the-line repair process” (Flower & Hayes, 1981, p. 367), but does, in fact, occur “continually throughout the writing of a work” (Sommers, 1980, p. 380) (see also e.g. Bridwell, 1980; Chenoweth & Hayes, 2001; Matsushashi, 1987; Sommers, 1980). In this sense, and according to Nold, (1979, pp. 105-106 in Fitzgerald, 1987, p. 483), revision not only comprises the correction of downright errors, but also applies to, for example, changes to the content of the text, improvements in the formulation of the content, and changes to the order of text segments. Therefore, revision is considered a critical component in producing and improving written products in relation to satisfying task requirements, writing goals and audience needs (e.g. Barkaoui, 2007, p. 81; MacArthur, 2016, p. 272).

Revision has been the subject of a number of studies within L1 writing research. From a product perspective, one or more writers’ revisions have been compared at predetermined moments during the writing process, e.g. revisions made while working on a draft with revisions made during the final version (e.g. Bridwell, 1980; Faigley & Witte, 1981), or revisions have been contrasted across different text types (e.g. Sommers, 1980; Matsushashi, 1987), different target groups (e.g. Monahan, 1984) or between writers with divergent skills. In particular, the experienced-inexperienced dichotomy (cf. the knowledge telling and knowledge transforming strategies above) has been subject to much contrastive analysis (e.g. Faigley & Witte, 1981; Monahan, 1984; Sommers, 1980) finding that “expert and novice writers differ with regard to how they perceive revision; their audience awareness; how much, when, how, and what they revise; and the effects of the revisions they make” (Barkaoui, 2007, pp. 83-84). Accordingly, less skilled writers often

“engage in little substantive revision, making primarily surface changes (or local revisions to content and wording.)” (MacArthur, 2016, p. 272 in reference to Fitzgerald, 1987, p. 492), and according to Hayes (1996) (referred to by MacArthur, 2016, p. 273), inexperienced writers may have a limited task schema for revision that focuses on correcting errors and linguistic surface features. This also holds true for L2 student writers; previous research (e.g. Barkaoui, 2007, 2016; Stevenson et al., 2006) suggests that L2 proficiency, among other factors, has an impact on revision processes as less proficient L2 writers tend to focus on carrying out revisions on linguistic surface features (see also Zhang, 2020, p. 4). From a process perspective, a number of studies have examined various aspects of revision as it unfolds in online text production (e.g. Kollberg & Severinson Eklundh, 2001; Lindgren & Sullivan, 2006b; Matsushashi, 1987; Van Waes & Schellens; Haugaard 2018).

According to Barkaoui (2007, p. 83), there are few empirical studies specifically addressing L2 writers revision practices, and as far as research on L2 student revisions is concerned, according to Zhang (2020, p. 3), a vast majority of studies focus on the students’ response to teacher and peer feedback (e.g. Conrad & Goldstein, 1999; Yu et al., 2019). Less is known about the actual revisions that L2 students engage in during writing (see, however, Barkaoui, 2007, 2016; Lindgren & Sullivan, 2006; Stevenson et al., 2006). According to Shibani et al. (2018, p. 332), in order to teach students revision skills to improve their writing, researchers and teachers must understand, among other things, how revision occurs. The present study addresses this question.

Another essential element in text production related to complying with task requirements, writing goals and audience needs is the consultation of external resources, i.e. resources beyond the writer’s memory, as it compensates for deficiencies in the writer’s working memory and supports the information that can be retrieved from the long term memory. According to Hartmann and James (2002, p. 28), a consultation is “[t]he act of using a reference work to look up (i.e. seek, find and retrieve) required information”. In the context of this paper, the term reference work is broadly defined as any external digital resource, such as an electronic dictionary or encyclopaedia, computer software, an internet search engine or a web site, which the student writer may access from the computer in order to respond to an information need, i.e. a shortage of internal resources (see also Hartmann and James, 2002, p. 118; Hvelplund, 2017, p. 72). The act of referring to a reference work for specific information may result in a single consultation or a series of related consultations (see also Kozlova & Presas, 2014, p. 3) suggesting that multiple consultations might be necessary to satisfy the same information gap in the internal resources.

According to Kozlova and Presas (2013, p. 36), previous studies in cognitive research in L2 writing have primarily focused on different aspects related to the use of internal resources like reformulation or different aspects of the use of the mother tongue (e.g. Murphy & Roca de Larios, 2010; Roca de Larios et al., 2001) (see also Murphy & Roca de Larios 2010, pp. 61–62 for an overview), and only few studies have investigated the use of external resources in L2 writing (e.g. Kozlova & Presas, 2013, 2014, 2016; Stapleton 2012). Kozlova and Presas (2013, p. 35), however, point out that L2 students make a wider use of external resources than L1 students as they, besides looking for ideas and references as L1 students do, need help formulating their thoughts in a foreign language. Also, L2 proficiency seems to influence the choice of external support. Kozlova and Presas (2014, p. 6, 2016, p. 2) argue that a combination of the language of the access key (e.g. the L1 or L2 element used by the student to access missing information) and the student's L2 proficiency will have an effect on which resources the student can successfully access. In this sense, students with limited L2 knowledge “will need to access reference sources using L1 options as an access key” and thus prefer a bilingual to a monolingual dictionary or resource (see also Stapleton, 2012). Moreover, Kozlova and Presas (2013, p. 35) assert that the traditional dictionary, which has been a main resource in resolving problems in L2 writing, is now being outrun by online (language) resources. However, the use of these online (language) resources is a relatively recent phenomenon and no studies have systematically investigated the electronic resources which L2 student writers consult in order to compensate for a deficiency in existing internal resources. Kozlova and Presas (2014, p. 3) highlight that “[k]nowing which situations cause our students' information needs and how our students tend to solve them is highly relevant”, and a first step towards, ultimately, helping them optimise their L2 text production process. Consequently, the present study aims to shed light on the specific resources consulted by L2 student writers in order to bridge an information gap during L2 writing.

As essential elements in L2 student writing, revisions and resource consultations both contribute to satisfying task requirements, writing goals and audience needs. However, no studies have investigated whether or how revisions and resource consultations are related. Hence, we don't know whether students are in need of external resources in order to carry out revisions or whether they engage in revision drawing on internal resources alone. Against this backdrop and with the aim of exploring revisions and resource consultations conducted during L2 student writing as well as their possible interplay, this study addresses the following questions:

1. *Which revision types do the students make to the content and the form of the text during L2 writing?*
2. *Which resource types do the students consult during L2 writing, and are consultations carried out individually or in chains?*
3. *What characterises the interplay, if any, between the students' revisions and resource consultations during L2 writing?*

The aim of this study is not to be representative but explorative and provide some first insight into students' revisions, their resource consultations, and the possible interplay. The intention is to focus on the practices of the group of students, thus discarding such variables as correctness or acceptability from a normative point of view.

### **Research Design**

The empirical material employed in this study was generated at Aalborg University, Denmark, during the academic year 2018-2019 in a course covering the translation and writing of business communication texts in Danish and Spanish.

Four students participated in the study.<sup>1</sup> They were all Danish and second year bachelor students enrolled in the same study programme, i.e. International Business Communication in Spanish. This programme focuses on (foreign) language and communication in companies and organisations and on how companies communicate professionally with people and markets in other cultures with a particular focus on the relationship between Denmark and Spain or Spanish-speaking countries in Latin America. At the time of the study, the students were at the beginning of their second year and their language proficiencies corresponded to the upper intermediate level B2 of the Common European Framework of Reference for Languages (CEFR). Writers at this level are able to produce clear, detailed texts on a variety of subject and to synthesise and evaluate information and arguments from different sources (Council of Europe, 2021). According to Shaw & Weir (2007), B2-writers are in the developmental process of moving from knowledge telling to knowledge transforming; they engage in macro-level planning making rhetorical decisions related to the purpose of the text and the audience and organising ideas, and in monitoring and revising cohesion, coherence, form and content (p. 45-61).

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<sup>1</sup> A total of seven students were enrolled in the course, but the recordings of three of the writing processes were, in some way, unsuccessful.

As part of the course, the students produced a Spanish press release. They were provided with a short case description in Danish including a brief, background knowledge and a glossary. The task required the students to select, organise and present relevant information taking into account the specific genre and the audience. The students had previously been introduced to writing process theory and to the press release as a genre, and they had had the opportunity to work analytically with its move structure and rhetorical strategies as well as to practice hands-on with translating a press release from Danish into Spanish.

Depending on the students' preferences, they carried out the task in class or at home and had approx. 45-50 minutes at their disposal (although one participant only needed approx. half an hour to complete the task). The students had unrestricted access to the internet including the two leading online general language Danish-Spanish-Danish bilingual dictionaries available by subscription, *Gyldendals Røde Ordbøger* and *Ordbogen.com*. Table 1 below shows that the writing processes ranged from 29 minutes (P2) to 52 minutes (P3) with an average of approx. 41 minutes. Also, the text lengths varied from 81 words (P4) to 321 words (P2) with an average of 183 words. This variation in text length implies that some press releases were more substantial and complete than others and possibly reflects that some students found the task very challenging.

Table 1. *Overview of writing process length in minutes and final text length in words*

<b>length</b>	<b>Participant 1</b>	<b>Participant 2</b>	<b>Participant 3</b>	<b>Participant 4</b>	<b>Average</b>
<b>Process</b>	43 minutes	29 minutes	52 minutes	41 minutes	41.25 minutes
<b>Text</b>	175 words	321 words	155 words	81 words	183 words

To capture the students' textual revisions and digital resource consultations, their writing processes were recorded using screen recording software, TechSmith's Camtasia (free trial version) ([www.TechSmith.com](http://www.TechSmith.com)) for Windows and QuickTime Player for Mac ([www.apple.com](http://www.apple.com)). A possible weakness of this research design is that it only captures students' consultations of digital resources and not of analogous or printed resources (Haugaard 2016, p. 102). However, as none of the students reported having consulted analogous or printed resources during writing, this potential shortcoming had no practical implications.

### **Analytical procedure**

Based on the screen capture recordings, the writing process for each student was described qualitatively by the researcher in a step-by-step approach, i.e. the consecutive actions carried out by the students in order to produce their texts were registered. From this process description, the

characteristics of the revisions and the resource consultations were analysed (See sections below), as well as their possible interplay. As only one researcher was involved, the analyses and the interpretations of the effect of the revisions on the form or the content of the text were revisited twice to ensure consistency and reliability. The following sections will unfold the analytical procedures and explain coding framework.

### Revisions – framework and coding

In order to study and understand revisions and revision strategies, several systems to systematically categorise and analyse revisions both from a product and a process perspective have been proposed in the literature.<sup>2</sup> A distinction can be made between product-oriented revision taxonomies which classify revisions according to their type, e.g. addition, omission and substitution (e.g. Bridwell, 1980; Sommers, 1980) and the effect they have on the written text, i.e. revision of content or form (e.g. Faigley & Witte, 1981), and process-oriented revision taxonomies which categorise online revisions according to their location, e.g. in a sentence already transcribed or at the current end of the text being transcribed (e.g. Lindgren & Sullivan, 2006a; Matsuhashi, 1987) or the semantic completeness of the written context in which they are carried out (Haugaard, 2016) making it possible to interpret the effect on the text on the basis of an observation of the writing process, e.g. by means of screen recording. To investigate the revision types made by the students while working with the content and the form of the text during L2 writing, this article applied the framework originally developed by Haugaard (2016) and further explained in Haugaard (2018) and particularly in Haugaard and Dam Jensen (2019) combined with Faigley and Witte's (1981) influential revision taxonomy discriminating between *form revisions*, which do not affect the meaning of the text, and *content revisions*, which do affect the meaning of the text. Moreover, the taxonomy distinguishes between six different revision types of which only three, *addition*, *omission*<sup>3</sup> and *substitution* were employed by the students in this study. As the framework of Haugaard (2016) was originally developed to describe Spanish journalists' revisions in online writing, two minor adjustments were necessary to respond to the differences in terms of writing expertise and language proficiency between the two groups of participants.

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<sup>2</sup> Another line of research focuses on the modeling of the cognitive revision process, e.g. Flower & Hayes (1981) and Scardamalia & Bereiter (1983). Although highly relevant, this perspective is beyond the scope of this article.

<sup>3</sup> Faigley and Witte named this revision type *deletion* to refer to the fact that something is left out. In an electronic environment, however, *omission* is a more appropriate label for this revision type.

First, we adjusted the concept of semantically meaningful context. The ability to produce semantically meaningful and coherent text is very much related to the proficiency of the L1 or L2, and in contrast to the professional writers studied in Haugaard (2016), L2 student writers are in a learning process which imply that they often produce lexically, grammatically, or syntactically incorrect phrases. Nonetheless, knowledge about the linguistic competencies of the students and their typical errors often makes it possible to infer what the students would have written, had they had the ability to do so. Therefore, it made sense to allow revisions made in such contexts which were not formally semantically meaningful to be included in the analysis for two reasons: 1) this weakness in the text cohesion is characteristic of L2 student writing, and 2) part of the students' text production process is a developmental process working continuously with the L2 and honing the ability to detect and correct their own errors.

Second, the present analysis included grammatical and orthographical revisions. Unlike the analysis of revisions in Haugaard (2016), the current study acknowledges recurrent problems in L2 student writing not commonly found in L1 professional writing. As these linguistic revisions corrected downright errors from a normative point of view, they could be interpreted independently of a semantically meaningful context. Typing errors and errors which obviously were due to the mode in which the text production takes place such as premature press of the space bar or commas were not included in the analysis. The distinction between spelling errors and typing errors was based on Lindgren and Sullivan (2006, p. 173) and Stevenson et al. (2006, pp. 230-231). Furthermore, only revisions actively undertaken by the participants were included in the analysis. Consequently, revisions carried out automatically by the AutoCorrect function integrated in the text processor Microsoft Word were excluded.<sup>4</sup>

The grammatical and orthographical revisions were categorised as substitutions – the incorrect form of a word is substituted by the correct form – and not as the actual actions involved in the substitution, e.g. the omission of a letter (a) and the addition of an accent (é) to correct a false concord in *producente danesa* → *producente danés* [Danish manufacturer], or the substitution of a letter (t by c) and the addition of an accent (ó) to correct the spelling of *production* to *producción*.

In summary, included in the analysis of the present study was any change to the written text carried out by the participants, the effect of which could be interpreted as concerning the form og

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<sup>4</sup> The AutoCorrect function integrated in the text processor Microsoft Word automatically corrects errors such as common typos and spelling errors.



the content of the text taking into account the specific characteristics of L2 student writing processes.

### **Resource consultations – framework and coding**

As indicated in the Introduction and background section, studies on resource consultations within research on L2 writing are scarce. However, within the neighbouring research field of Translation Studies, some studies have examined different aspects of translators' resource consultation behaviour (e.g. Bundgaard & Christensen, 2019; Hvelplund, 2017). In the interest of this study, the study by Hvelplund (2017) stands out in that it offers a categorisation of the kinds of digital resources used by professional translators. The categorisation includes five resource consultation categories identified in a bottom-up fashion from the translation processes, namely bilingual dictionaries, monolingual dictionaries, internet search engines, reference works and websites and conversion tools (p. 79). Moreover, Hvelplund stresses the fact that the categorisation reflects the source texts involved, i.e. the nature of the assignment. With this in mind, and with the aim of investigating the type of external resources consulted by the students during L2 writing, the present study adopted a bottom-up approach, in line with Hvelplund, in the analysis of the resource consultations.

We mentioned in the Introduction and background section that resource consultations can be carried out in isolation or in a chain of related consultations; that is a sequence of consecutive consultations dedicated to filling one knowledge gap. For the present study, a chain consultation was defined as a series of related consultations carried out consecutively and generally without being interrupted by text production. However, very occasionally the two last consultations in a chain were separated by text production. In such cases, there was no doubt that the last consultation was related to the chain before the text production.

Sporadically, students revisited previously performed consultations, i.e. the students returned to the dictionary search or the browser tab containing a web page search. Such revisited consultations were coded and included in the analysis as one single consultation. However, if the exact same consultation was carried out twice during the process, e.g. if the same noun was searched for in a dictionary previously consulted for that noun, then both consultations were included in the analysis.

Consultations carried out in resources such as dictionaries or web pages were easily identified because of the switch between windows or tabs and/or the explicit input required in the search field

like a lemma or an expression. In contrast, consultations of the glossary in this study were more subtle. The glossary was included in the electronic document with the brief, and consultations were mainly visible when students scrolled down to this section of the document and/or placed the cursor in the glossary, and a word or an expression in the glossary was subsequently used in the text production or revision. In cases where the glossary was consulted, cf. the indications above, and followed by a consultation in another resource, it was assumed that the student did not find a solution to their knowledge problem in the glossary and therefore continued their search in another resource. Hence, such cases were considered chain consultations consisting of a glossary consultation and a consultation of another resource. On some occasions the glossary was visible on the screen next to the document in which the student was writing. If such visible words or expressions were used for text production or revision, it was assumed that the word(s) from the glossary served as input and this was then categorised as a glossary consultation.

The above descriptions refer to the two different actions of carrying out either revisions or resource consultations. However, in relation to the spelling and grammar checking feature integrated in Microsoft Word, these two actions appear to be linked. If enabled, this feature will apply in-line spelling and grammar checking which means misspelled or ungrammatical words will appear underlined in red and blue, respectively, making the writer aware of a potential error. Since this underlining was not a deliberate action carried out by the participants (but rather the software), it was not coded as a consultation and, hence, excluded from the analysis. The correction of the error, in turn, constitutes a deliberate action, and was therefore categorised as a revision and included in the analysis. If this revision was carried out by right-clicking on the word to select another word from the pop-up menu, the deliberate act of right-clicking was categorised as a consultation and included in the analysis.

Table 2. *Overview of the identification and interpretation of resource consultations*

<b>Identification of resource consultations</b>	
Dictionaries, Google searches, reference works, websites and webpages, and electronic documents	change in window or tab and/or input in the search field like a lemma or an expression
Glossary	scroll down from the brief to the glossary and/or placement of the cursor in the glossary and the subsequent use or revision of a word or an expression from the glossary  words or expression from the visible glossary used for text production or revision
Microsoft Word's spelling and grammar checking feature	right-clicking on an underlined word in order to select another word from a pop-up menu
<b>Identical consultations</b>	
Revisit to a previously performed consultation	one single consultation
Repetition of a consultation	two distinct consultations
<b>Chain consultations</b>	
Uninterrupted	golfsko [ <i>golf shoes</i> ] (online dictionary) → sko [ <i>shoes</i> ] (online dictionary) → golf [ <i>golf</i> ] (online dictionary) → zapatos de golf [ <i>golf shoes</i> ] (Google search)
Interrupted	samarbejdspartner [ <i>collaborator</i> ] (online dictionary) → partner [ <i>partner</i> ] (online dictionary) → text production → samarbejde [ <i>collaboration</i> ] (online dictionary)

## Results and Discussion

This section presents our results and discusses them according to our three specific research questions.

### Revision types

First, we address research question 1: *Which revision types do the students make to the content and the form of the text during L2 writing?*

Table 3 below provides an overview of the revisions carried out by the four students during their writing of the press release. On a general level, the analysis of the revisions showed that the four students carried out 78 revisions in total but also that individual numbers spanned from 9 revisions as the lowest number (P4) to 28 revisions as the highest number (P2) resulting in an average of 19.5 revisions per participant. When relating these individual numbers to the number of characters typed during the process (cf. Table 1 above), it appears that the numbers spanned from 8.7 revisions per 100 words as the lowest number (P2) to 14.28 revisions per 100 words as the highest number (P1) resulting in an average of 10.65 revisions per 100 words per student. These idiosyncratic characteristics are a premise in this study which, as stated in the Introduction and background section, mainly focuses on the four students as one group.

As regard the effect of the revisions on the text, the analysis showed that 61 (or 78%) of the 78 revisions performed by the students were revisions of form, and only 17 (or 22%) were revisions of content. Although the specific percentage of form revisions varied somewhat between the students, all four participants carried out markedly more form revisions than content revisions.

Table 3. Overview of revision types and effect on the content or form of the text

Revision type	Overall			Participant 1		Participant 2		Participant 3		Participant 4	
	Total number	% of category	% of total	N°	%	N°	%	N°	%	N°	%
<b>Form</b>											
<b>Addition</b>	17	28%	22%	4	21%	8	35%	2	18%	3	38%
<b>Omission</b>	6	10%	7%	2	11%	-	-	3	27%	1	12%
<b>Substitution</b>	38	62%	49%	13	68%	15	65%	6	55%	4	50%
<b>Total form</b>	<b>61</b>	<b>100%</b>	<b>78%</b>	<b>19</b>	<b>100%</b>	<b>23</b>	<b>100%</b>	<b>11</b>	<b>100%</b>	<b>8</b>	<b>100%</b>
<b>Content</b>											
<b>Addition</b>	12	71%	15%	3	50%	4	80%	4	80%	1	100%
<b>Omission</b>	3	17%	4%	1	17%	1	20%	1	20%	-	-
<b>Substitution</b>	2	12%	3%	2	33%	-	-	-	-	-	-
<b>Total content</b>	<b>17</b>	<b>100%</b>	<b>22%</b>	<b>6</b>	<b>100%</b>	<b>5</b>	<b>100%</b>	<b>5</b>	<b>100%</b>	<b>1</b>	<b>100%</b>
<b>Total revisions</b>	<b>78</b>	-	-	<b>25</b>	-	<b>28</b>	-	<b>16</b>	-	<b>9</b>	-
<b>Revisions in relation to length</b>	<b>11</b>			<b>14</b>		<b>9</b>		<b>10</b>		<b>11</b>	

When looking into the specific revision types employed by the students, addition, omission and substitution were used in revisions of both content and form. Substitution was the most frequent revision type among form revisions at the group level – 38 times amounting to 62% of the form revisions and nearly 50% of all revisions. Likewise, at the participant level, substitutions were the most common form-revision type accounting for between 50% (P4) and approx. 68% (P1) of the revisions. Table 4 below provides examples of substitutions.

Table 4. *Examples of substitution as a form-revision type*

Reason	Examples
Correction of spelling errors	produccion → producc <u>ión</u>
Agreement	La empresa <u>danés</u> ha contratado el golfista [ <i>The <u>Danish</u> company has hired the golfer</i> ] → La empresa <u>danesa</u> ha contratado el golfista [ <i>The <u>Danish</u> company has hired the golfer</i> ]
Use of synonymous expressions/nouns/noun phrases	El mastodonte de <u>zapatos</u> danesa contrae un acuerdo de patrocinio con [ <i>Danish <u>shoe</u> mastodon signs sponsorship agreement with</i> ] → El mastodonte de <u>calzado</u> danesa contrae un acuerdo de patrocinio con [ <i>Danish <u>footwear</u> mastodon signs sponsorship agreement with</i> ]

Another common form-revision type employed at group level was the addition of text which was carried out 17 times constituting approx. 28% of the form revisions and approx. 22% of all revisions. At the participant level, form additions ranged from approx. 18% (P3) to 37.5% (P4) of all form revisions. Table 5 below provides examples of additions.

Table 5. *Examples of addition as a form-revision type*

Reason	Examples
Making implicit information explicit and strengthening the cohesion of the text.	Ecco A/S acordará un acuerdo de patrocinio con el golfista reconocido → Ecco A/S acordará un acuerdo de patrocinio con el golfista <u>español</u> reconocido [ <i>Ecco A/S will conclude a sponsorship agreement with the renowned <u>Spanish</u> golfer</i> ]  ECCO Sko A/S ha contraído un acuerdo de patrocinio con el golfista M → ECCO Sko A/S ha contraído un acuerdo de patrocinio con el golfista <u>reconocido</u> M [ <i>ECCO Sko A/S has entered into a sponsorship agreement with the <u>renowned</u> golfer M</i> ]

Omissions were the least common form-revision type, being applied only 6 times in total by three participants amounting to approx. 10% of all form revisions and approx. 8% of all revisions. They were used to omit information that could already be inferred from the text. See table 6 below for an example.

Table 6. *Example of omission as a form-revision type*

Reason	Examples
Omitting information that could already be inferred from the text	<p>...actuar como el personaje principal en la nueva campaña publicitaria española, que tiene el primer objetivo de promover la imagen de la empresa en España.</p> <p><i>[...act as the main character in the new Spanish advertising campaign, which has the main objective of promoting the image of the company in Spain]</i></p>

The most common content-revision type at group and participant level was, by far, the addition of content (see Table 7 below). At group level, addition was implemented 12 times amounting to 70.58% of content revisions and 15.38% of all revisions and at participant level, content additions accounted for between 50% (P1) and 100% (P4) of the content revisions.

Table 7. *Examples of addition as a content-revision type*

Reason	Examples
Adding content that could not otherwise be inferred from the written text	<p>ECCO Sko A/S ha contraído un acuerdo de patrocinio con el golfista reconocido Miguel Angel Jiménez → ECCO Sko A/S ha contraído un acuerdo de patrocinio <u>de dos años</u> con el golfista reconocido Miguel Angel Jiménez</p> <p><i>[ECCO Sko A/S has entered into a <u>two-year</u> sponsorship agreement with the renowned golfer Miguel Angel Jiménez]</i></p>

Omission as a content-revision type was applied three times (once each by three participants) amounting to approx. 17.5% or 4% of all revisions and substitution was applied twice (by one participant), amounting to 12% or 2.5% of all revisions, meaning that neither content-revision type

was very common. See Table 8 below for examples of omission and substitution as content-revision types.

Table 8. *Examples of omission and substitution as content-revision types*

Reason	Examples
<b>Omission:</b> Used to leave out insignificant details	<p>En este conjunto el señor Angel Jiménez será el embajador de la empresa y va a llevará el logotipo de ECCO en el cuello de sus camisas de jugar.</p> <p><i>[In this set, Mr. Angel Jiménez will be the company's ambassador and will wear the ECCO logo on the collar of his player shirts.]</i></p>
<b>Substitution:</b> Used to correct a factual error	<p>Para más información deben contactar con nuestro división <u>española</u>: → Para más información deben contactar con nuestro división <u>danés</u>:</p> <p><i>[For more information contact our Spanish → Danish department]</i></p>
<b>Substitution:</b> Used to replace a broad or imprecise reference by a more narrow or accurate one	<p>El fabricante de calzados danés, que es uno de los líderes de  <u>sector</u> en Escandinavia... →</p> <p>El fabricante de calzados danés, que es uno de los líderes de <u>zapatos de golf</u> en Escandinavia...</p> <p><i>[The Danish footwear manufacturer, which is one of the industry leaders → <u>leaders in golf shoes</u> in Scandinavia...]</i></p>

Our findings indicate that revisions of form were far more common than revisions of content. This distribution could indicate that the students, to their own judgement, succeeded in planning and generating suitable content which did not often require revision. On the other hand, it could also mirror the tendency of less skilled writers to concentrate on surface changes (See Introduction and background section). Nonetheless, the dominance of form-revision types substituting and adding text suggests, apart from a need of correcting spelling and agreement errors, a focus on employing a specialised or narrow vocabulary and on making relations explicit and/or strengthening the cohesion of the text, thus helping the reader to draw inferences. In this sense, the students' revision practices demonstrated an awareness of the relatively formal register appropriate for the



assignment/press releases, and a focus on the cohesion of the text as well as the audience's needs. In other words, the students' level of proficiency (B2) and their growing ability to engage in knowledge transforming strategies (See Introduction and background section) were reflected in their revision practices.

### Types of resources

Next we address research question 2: *Which resource types do the students consult during L2 writing and are consultations carried out individually or in chains?*

A range of digital resources was consulted during the production of the four press releases. Table 9 below lists the six resource consultation categories, which were identified in a bottom-up fashion (see Resource consultations – framework and coding section) from the writing processes of the four press releases, i.e. glossaries, bilingual dictionaries, monolingual dictionaries, Google searches, reference works, websites and webpages, and electronic documents.

Table 9. *Overview of resource consultations*

RESOURCE TYPE	OVERALL			PARTICIPANT 1			PARTICIPANT 2			PARTICIPANT 3			PARTICIPANT 4		
	N <sup>o</sup>	% OF CAT.	% OF TOT.	N <sup>o</sup>	% OF CAT.	% OF TOT.	N <sup>o</sup>	% OF CAT.	% OF TOT.	N <sup>o</sup>	% OF CAT.	% OF TOT.	N <sup>o</sup>	% OF CAT.	% OF TOT.
<b>Glossary</b>	<b>20</b>	<b>100 %</b>	<b>10%</b>	-	-	-	<b>12</b>	<b>100%</b>	<b>24%</b>	<b>1</b>	<b>100%</b>	<b>3</b>	<b>7</b>	<b>100%</b>	<b>23%</b>
<b>Bilingual dictionaries</b>	<b>13</b>	<b>100 %</b>	<b>69%</b>	<b>6</b>	<b>100 %</b>	<b>75,5%</b>	<b>29</b>	<b>100%</b>	<b>57%</b>	<b>26</b>	<b>100%</b>	<b>76%</b>	<b>19</b>	<b>100%</b>	<b>64%</b>
- Gyldendals Røde ordbøger	83	61%	42%	4	77%	58,5%	-	-	-	24	92%	70%	11	58	37%
- Ordbogen.com	42	31%	21%	1	23%	17%	28	97%	55%	-	-	-	-	-	-
- Linguee.com	11	8%	6%	-	-	-	1	3%	2%	2	8%	6%	8	42%	27%
<b>Monolingual dictionaries</b>	<b>13</b>	<b>100 %</b>	<b>7%</b>	<b>1</b>	<b>100 %</b>	<b>1%</b>	<b>9</b>	<b>100%</b>	<b>17%</b>	<b>3</b>	<b>100%</b>	<b>9%</b>	-	-	-
-Word	13	100 %	7%	1	100 %	1%	9	100%	17%	3	100%	9%	-	-	-
<b>Google search</b>	<b>11</b>	<b>100 %</b>	<b>6%</b>	<b>1</b>	<b>100 %</b>	<b>12%</b>	<b>1</b>	<b>100%</b>	<b>2%</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
- Deep	1	9%	0,5 %	1	10%	1%	-	-	-	-	-	-	-	-	-
- Shallow	10	91%	5%	9	90%	11%	1	100%	2%	-	-	-	-	-	-

<b>Reference works, websites and web pages</b>	<b>12</b>	<b>100</b>	<b>6%</b>	<b>8</b>	<b>100</b>	<b>11%</b>	-	-	-	-	-	-	<b>4</b>	<b>13%</b>	<b>13%</b>
- super-ordinate sites	3	25%	1,5 %	3	37%	4%	-	-	-	-	-	-	-	-	-
- specific pages	9	75%	4,5 %	5	63%	6%	-	-	-	-	-	-	4	13%	13%
<b>Electronic documents</b>	<b>5</b>	<b>100</b>	<b>2,5</b>	<b>1</b>	<b>100</b>	<b>1%</b>	-	-	-	<b>4</b>	<b>100%</b>	<b>12%</b>	-	-	-
- brief	2	40%	1%	1	100 %	1%	-	-	-	1	25%	3%	-	-	-
- private documents	3	60%	1,5 %	-	-	-	-	-	-	3	37%	9%	-	-	-
<b>TOTAL N° OF CONSULTATIONS</b>	<b>19</b>	-	-	<b>8</b>	-	-	<b>51</b>	-	-	<b>34</b>	-	-	<b>30</b>	-	-
<b>CONSULTATIONS IN RELATION TO LENGTH</b>	<b>7</b>	-	-	<b>2</b>	-	-	<b>16</b>	-	-	<b>22</b>	-	-	<b>37</b>	-	-

Resources are presented for each category along with the total number of consultations and share of total number of events (in per cent) both at group level and at participant level. Table 9 shows that the four students as a group consulted external resources 197 times in total. Similar to the findings from the revisions at the participant level, variations occurred among the participants, resulting in a range from 30 consultations as the lowest number (P4) to 82 consultations as the highest number (P1) with an average of 53 consultations per student. When these individual numbers are related to the number of words in the final texts (cf. Table 1 above), it appears that numbers spanned from 16 consultations per 100 words as the lowest number (P2) to 47 consultations per 100 words as the highest number (P1) resulting in an average of approx. 30 consultations per 100 words per student. In this sense, the individual number of consultations in relation to produced words seems to display a more heterogeneous picture as was the case with the revisions.

### **Bilingual dictionaries and glossary**

Table 9 above shows that the two most important resources measured by number of consultations were bilingual dictionaries and the glossary.

The bilingual dictionaries constituted 136 of the 197 consultations, representing 69% of all resource consultations, and this was, by far, the favoured resource used at the group level.

Zooming in on the individual patterns, bilingual dictionary consultations accounted for between 57% (P2) and 76% (P3) of the students' consultations. The general language dictionary *Gyldendals Røde Ordbøger* was also, by far, the preferred choice of dictionary with 83 consultations or 61% of the bilingual dictionary consultations, while another general language dictionary *Ordbogen.com* came in second with 42 consultations or 31%. The multilingual online dictionary and search engine *Linguee.com* was consulted 11 times or in 8% of the dictionary consultations. At the participant level, three of the four students favoured the bilingual dictionary *Gyldendals Røde Ordbøger* over other bilingual dictionaries (ranging from 58% (P4) to 92% (P3) of the consultations) whereas one student (P2) made use of *Ordbogen.com* as a dominant first choice (97% of the student's consultations) and did not employ *Gyldendals Røde Ordbøger* at all. Moreover, both of these bilingual dictionaries were consulted by three students: *Gyldendals Røde Ordbøger* (P1, P3 and P4) and *Linguee.com* (P2, P3 and P4), while *Ordbogen.com* was consulted only by two students (P1 and P2). The vast majority of consultations were Danish to Spanish and quite rarely the opposite direction. An analysis of the text production following the consultations suggests that consultations were filling in gaps particularly in terms of lexical knowledge (vocabulary) and occasionally concerning grammatical knowledge (gender and conjugation).

The Danish-Spanish glossary included in this assignment comprised some relevant words and expressions from the subject area, which were listed after the task description. The glossary was consulted 20 times in total by three of the four participants (P2, P3, and P4) constituting 10 per cent of all consultations. For two of these participants, the glossary accounted for approx. 23% of their consultations making glossary consultations their second (P2) and third (P4) choice of resource. Glossary consultations for the third participant amounted to 3% making the glossary the least employed resource of this participant.

### **Monolingual dictionaries**

The only monolingual tool used during the writing process was the spelling checking feature embedded in the text processor Microsoft Word. This tool was enabled and deliberately activated (see Resource consultations – framework and coding section) 13 times by three of the four participants amounting to 7% of all consultations. One participant (P2) carried out the vast majority, namely nine, of the activations which constituted 17.5% of the total resource consultations for this participant making this resource the third most important.

### **Google searches**

Google was the only internet search engine used. Searches were performed 11 times by two of the four participants accounting for 6% of all consultations. The vast majority of the searches, i.e. 10 out of 11, or 91%, were performed as *shallow* searches, where the student remained in the website space of Google's search engine and maybe browsed text snippets or checked an expression's context and frequency (Hvelplund, 2017, p. 81), and only 1 search (or 9%) was carried out as a *deep* search where the student moved on from the website space of Google's search engine to access relevant information on a specific website (Hvelplund, 2017, p. 81). In this study, Google searches were predominantly carried out to search for or to validate subject-related terminology and expressions. As was the case with the consultation of the spelling checking feature, one participant in particular (P1) carried out the vast majority of the searches (10), constituting 12% of the total number of resource consultations of this participant, making this resource the second most popular resource category of this participant.

### **Reference works, websites and web pages**

Several reference works, websites or web pages were consulted 12 times by two participants during writing. This corresponds to 6% of all consultations. The majority of the consultations (75%) were *deep* searches in the sense that relevant information on specific websites or web pages was accessed. This consultation category was used to seek information on the genre structure of the press release and/or on genre-specific vocabulary.

### **Electronic documents**

Various electronic documents were consulted five times by two participants during their writing processes corresponding to 2.5% of the total number of consultations. Of the five consultations, four were carried out by one participant (P3) constituting 12% of the total number of resource consultations for this participant which makes this resource the second most popular of this participant. Similar to the previous category, this category was used to seek information on the genre structure of the press release and/or on genre specific vocabulary.

Based on these figures, there seemed to be a heavy reliance on bilingual dictionaries or glossaries to solve problems in L2 writing. This suggests that the participants often experienced problems relating to gaps in their L2 vocabulary and used their L1 as the access key making their text production became a kind of translation. The results are, thus, consistent with previous research (see Introduction and background section). Moreover, given that the terminology in this assignment was not specialised, and that some high-frequency words and expressions from the subject area

were listed in a glossary at the end of the task description, the choice of general language dictionaries seems natural. Also, the spelling and grammar checking feature in Word seemed to be an important resource to verify spelling and grammar.

### Single consultations and chain consultations

Table 10 below presents the distribution of consultations between single consultations and chain consultations. It appears that 67 of the 197 consultations (or 34%) were made as single consultations, and 130 (or 66%) as chain consultations.

Table 10. *Distribution between single consultations and chain consultations*

Type of consultation	Overall		Participant 1		Participant 2		Participant 3		Participant 4	
	N°	%	N°	%	N°	%	N°	%	N°	%
<b>Single consultations</b>	<b>67</b>	<b>34%</b>	14	17%	28	55%	13	38%	12	40%
<b>Chain consultations</b>	<b>130</b>	<b>66%</b>	68	83%	23	45%	21	62%	18	60%

Individual profiles reveal that chain consultations were the favoured consultation strategy of three of the four participants accounting for between 60% (P4) to 83% (P1) of their consultations. In the case of one participant (P2), single consultations were more common representing 55% of the consultations. This number is partially due to the fact that this student deliberately activated the spelling and grammar checking feature integrated in Microsoft Word nine times to correct spelling errors in nine different words (see Monolingual dictionaries section).

During the writing of the four press releases a total of 42 chain consultations were identified.

Table 11 below presents the number of links identified in these chains. The chains most often had two (50%) or three links (26%), meaning that two or three links were usually required to obtain the information needed. The profiles of the individual participants show that three of the four participants (P1, P2 and P3) preferred the two-linked chain – especially pronounced in the case of P2 – and that one participant (P4) seemed to prefer a chain with three links.

Table 11. *Number of links in the chain consultations*

N° of links	Overall		Participant 1		Participant 2		Participant 3		Participant 4	
	N°	%	N°	%	N°	%	N°	%	N°	%
2	21	50	9	45%	8	80%	3	43%	1	20%
3	11	26	6	30%	1	10%	2	29%	2	40%
4	4	10	1	5%	1	10%	1	14%	1	20%
5	1	2,3	-	-	-	-	1	14%	-	-
6	3	7,1	2	10%	-	-	-	-	1	20%
7	1	2,3	1	5%	-	-	-	-	-	-
8	-	-	-	-	-	-	-	-	-	-
9	1	2,3	1	5%	-	-	-	-	-	-
<b>Total</b>	<b>42</b>	<b>100</b>	<b>20</b>	<b>100%</b>	<b>10</b>	<b>100%</b>	<b>7</b>	<b>100%</b>	<b>5</b>	<b>100%</b>

Zooming in on the number of different resources consulted in a chain consultation (see Table 12 below), it appears that the vast majority of the chain consultations were conducted using one resource (50%) or two resources (43%). Individual differences reveal that three of the four participants (P1, P2, and P3) preferred a chain consultation using one resource whereas the chains of one participant (P4) were characterised by the consultation of two different resources.

Table 12. *Number of different resources in the chain consultations*

N° of resources	Overall		Participant 1		Participant 2		Participant 3		Participant 4	
	N°	%	N°	%	N°	%	N°	%	N°	%
1	21	50	10	50%	6	60%	5	71%	-	-
2	18	26	7	35%	4	40%	2		5	100%
3	1	10	1	5%	-	-	-		-	-
4	1	2,5	1	5%	-	-	-		-	-
-	-	7	-	-	-	-	-		-	-
7	1	2,5	1	5%	-	-	-		-	-
<b>Total</b>	<b>42</b>	<b>99,9</b>	<b>20</b>	<b>100%</b>	<b>10</b>	<b>100%</b>	<b>7</b>	<b>100%</b>	<b>5</b>	<b>100%</b>

These results suggest that resource consultations were generally carried out in chains, and, consequently, that consecutive consultations were often required for the information retrieval to be successful. The findings also indicate that the most frequent chain consisted of two or three consultations within the same resource or within two different resources. However, as the number of chains identified particularly in the case of P4 and partially in the case of P3 is relatively modest, their preferences as regards number of links should not be given much weight.

Summing up, the findings seem to indicate that, in L2 writing, the information need of B2-writers is often related to their L2 vocabulary, and that they – despite their upper intermediate level of the CEFR – have a limited knowledge of L2, as they resort to their L1 as the access key (See Introduction and background section). Results also seem to suggest that B2-writers generally have to carry out consecutive consultations to bridge an information gap.

### Interplay between revisions and resource consultations

Finally, we address research question 3: *What characterises the interplay, if any, between the students' revisions and resource consultations during L2 writing?*

The combined analysis of the students' revisions and resource consultations reveals an interplay between these two categories 17 times as outlined in Tables 13 and 14 below, as 17 revisions were carried out following a resource consultation. This corresponds to approx. 22% of the revisions.

Table 13. *Interplay between resource consultations and revisions*

Revision type	Overall			Participant 1	Participant 2	Participant 3	Participant 4
	Total number	% of category	% of total	Number	Number	Number	Number
<b>Form</b>							
Addition	1	7%	6	-	1	-	-
Omission	-			1	-	-	-
Substitution	15	94%	88	-	11	-	-
<b>Total form</b>	<b>16</b>	<b>100%</b>	<b>94%</b>	<b>1</b>	<b>12</b>	<b>0</b>	<b>0</b>

<b>Content</b>							
<b>Addition</b>	-			-	-	-	-
<b>Omission</b>	1	100%	6%	-	-	-	-
<b>Substitution</b>	-			1	-	2	1
<b>Total</b>	<b>1</b>	<b>100%</b>	<b>6%</b>	<b>1</b>	<b>0</b>	<b>2</b>	<b>1</b>
<b>content</b>							
<b>Total</b>	<b>17</b>	<b>100%</b>	<b>100%</b>	<b>2</b>	<b>12</b>	<b>2</b>	<b>1</b>
<b>revisions</b>							

16 of the 17 revisions were revisions of form (approx. 94%), and the vast majority of these were substitutions (15 or 94%). In this sense, these results reproduce the results of the overall analysis of revision types and distribution between form and content revisions (see Revision types section). Although three of the substitutions (approx. 20 per cent) were carried out to apply more specialised vocabulary such as ‘logo’ instead of ‘name’ or ‘footwear’ instead of ‘shoes’, the majority (12 revisions or 80%) were undertaken to correct actual errors such as misspellings and a single error of agreement. The two remaining revisions following resource consultations, namely addition of text and omission of content, made explicit what could already be inferred from the text and omitted a defining characteristic. At the participant level, whereas three of the four students carried out 1-2 revisions following a resource consultation each, one student, P2, was responsible for the vast majority of the revisions (12 revisions or 80%). Nine of these revisions were corrections of spelling errors following the consultation of the spelling and grammar checking feature in Microsoft Word (see Monolingual dictionaries and Single consultations and chain consultations sections).



Table 14. *Interplay between resource types and revision types*

resource type	Overall		Form		Content			
	Total Form	Total Content	Addition	Omission	Substitution	Addition	Omission	Substitution
<b>Glossary</b>	4	-	1	-	3	-	-	-
<b>Bilingual dictionary</b> (Gyldendals Røde ordbøger)	1	-	-	-	1	-	-	-
<b>Monolingual dictionary</b> (Word)	11	-	-	-	11	-	-	-
<b>Google search</b>	-	1	-	-	-	-	1	-
<b>Total</b>	<b>16</b>	<b>1</b>	<b>1</b>	<b>0</b>	<b>15</b>	<b>0</b>	<b>1</b>	<b>0</b>
<b>Total</b>	<b>17</b>		<b>16</b>			<b>1</b>		

Focusing on the different resources consulted prior to the revisions, Table 12 above shows that the favoured resource was, by far, the monolingual dictionary feature available in Microsoft Word. This tool was consulted 11 times (by two students) and subsequently applied to correct the errors in question, notably spelling mistakes (10 of 11). The glossary was consulted four times (by two students) and the subsequent revisions introduced more specialised or narrow vocabulary into the text by employing synonymous nouns or noun phrases (3) or added text that made explicit what could already be inferred from the text (1). The bilingual dictionary *Gyldendal* was consulted once prior to the correction of a spelling error, and Google was consulted once prior to the omission of content. This Google search was preceded by another Google search, and is, thus, the only chain consultation of a resource prior to a revision.

Our findings indicate a low interplay between revisions and external resource consultations, with the students consulting external resources in almost one fifth of the revisions implemented. This result implies that for the vast majority of the revisions, they considered themselves capable of

carrying out the revision by means of internal resources. In the 17 instances, where resources were consulted prior to carrying out a revision, the vast majority of consultations were related to revisions of actual errors. In this sense, the types of resources consulted and the dominance of single consultations over chain consultations might not be that surprising. In other words, and in terms of the CEFR, the results seem to suggest that B2-writers rely on internal resources to carry out most revisions in L2 writing, and that, when they identify a need for an external resources to solve a specific problem, they are able to target the most useful external resource.

### **Conclusion**

The aim of this paper has been to explore the writing practices of L2 student writers in terms of their revisions and resource consultations as well as the possible interplay between these.

As regards research question one, the typical revision types identified and their effect on the text implies that the students were concerned mainly with spelling and grammar, as well as the level of formality, text cohesion and audience needs. From a teacher perspective, this knowledge can be used to call students attention to their practices, and to support them in developing strategies to anticipate revisions or to handle them appropriately. Some of the practices may not need to be changed as such but rather to be articulated and nurtured.

In relation to research question two, the pronounced dependence on bilingual dictionaries or glossaries as primary resources to solve problems in L2 writing indicate that the students faced problems relating to gaps in their L2 vocabulary and used their L1 as the access key. This implies that teachers need to support the students in improving their vocabulary as well as developing appropriate strategies for information retrieval. Developing good search skills is not only desirable in a L2 writing setting but also highly attractive in a workplace setting. This leads us to the findings that consecutive consultations, two or three consultations within the same resource or within two different resources, were often required for the information retrieval to be successful. Moreover, in his study of translators' use of digital resources during translation, Hvelplund (2017) suggests that the number of different types of resources consulted by a translator can be an indicator of their search profile. In the present study, the number of different types of digital resources consulted varied from three (P4) to five (P1) with an average of four. With a point of departure in Hvelplund's (2017) categorisation, three participants in the present study demonstrated a moderately advanced search profile, and one student presented an advanced profile. However, a large number of resource consultations and long search chains may not unveil meticulousness in relation to filling a knowledge gap. It could instead be attributed to the subject's lack of proper problem-solving

strategies (Cid & Presas, 2009). A more nuanced examination of the number and the specific resources consulted in relation to a knowledge gap and an assessment of the chosen solution might contribute to a better understanding of the relation between (number of) resources consulted, subject's skills and text quality. However, the strong dominance of form-revision types over content-revision types combined with the heavy reliance on bilingual dictionaries or glossaries identified in this study offer further empirical support for research indicating that L2 student writing is a form-focused activity and that language considerations (grammar, vocabulary and spelling) are prominent (e.g. Silva 1992 in de Larios et al. 2006: 102).

As far as research question three is concerned, the moderate interplay identified between revisions and resource consultations suggests that the students considered themselves capable of carrying out the vast majority of the revisions by means of internal resources. Moreover, our findings indicate that in the cases where the student identified the need for an external resource to solve a specific problem (predominantly actual form errors), they could target the most useful resource in that specific instance (predominantly the spelling checking feature embedded in Microsoft Word).

Above, we have emphasised the empirical findings of the study as well as pointed to some of their implications for teaching and future research. However, we also wish to point out some limitations. The study is highly exploratory and draws on data from four L2 writing processes. This limited number of processes makes the study sensitive to idiosyncratic practices which, among other things, implies that it is not possible to identify any general trends. Moreover, some weaknesses relate to the research design and the fact that study was carried out as an integrated part of an ongoing course. First of all, as the students should be able to produce the press release during class, time was used as a criterion to limit the task. However, this criterion resulted in differences in the completeness of the task as well as in different text lengths. Second, the fact that some of the students had to or chose to write the press release at home might have had an impact on lost data as two out of three recordings, in some way, were lost. Third, neither the text quality nor the correctness or acceptability from a normative point of view were considered making it impossible to assess the appropriateness of the choices related to the revisions and resource consultations. Should the students have revised/consulted more/differently? Lastly, one student reported having experienced writer's block maybe as a consequence of the process being recorded. Future studies might benefit from taking these limitations of the study into consideration as well as develop the methodology further e.g. by including interviews with the students. Yet, the findings of this study contribute to further analysis on a larger scale e.g. including more participant and/or more texts



and/or more language pairs to get an understanding of the strategies the students employ and how these can then be developed into guidelines for the students to work with.

### **Biodata**

Rikke Hartmann Hugaard holds a PhD in Business Communication and has been affiliated with the Department of Culture and Learning at Aalborg University as an assistant professor. Her research interests include writing and translation practices of both professionals and students – the latter group particularly within the field of foreign language teaching and learning.

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