The analysis of graduate students' use of transition markers

Vesna Bogdanović*, Jagoda Topalov**, Višnja Pavičić Takač***,
* Faculty of Technical Sciences (University of Novi Sad), Serbia; vesna241@uns.ac.rs
**Faculty of Philosophy (University of Novi Sad), Serbia; jagoda.topalov@ff.uns.ac.rs
*** Faculty of Humanities and Social Sciences (J. J. Strossmayer University of Osijek), Croatia;
vpavicic@ffos.hr

Abstract
Transition markers are used in academic writing to indicate enumeration and addition, summation, apposition, result, inference, contrast, and transition. These markers, including both conjunctions and adverbial phrases, should be used by students in their theses in order to improve cohesion and reader comprehension. This study examines graduate students' L2 English writing and provides examples of how students use transition markers, aiming at researching whether L2 English writers overuse/underuse transition markers in relation to L1 English graduate students' writing. The comparison is made between the corpus of theses written by Croatian students (121,170 words) and Serbian students (255,451 words), highlighting the frequency and appropriateness of the use of transition markers, as well as providing examples of over- and under-usage. Results will indicate that the overuse of markers in the Serbian corpus is due to the lengthier MA theses. In contrast, the underuse of markers in the Croatian corpus may be due to students lacking register awareness.

Keywords: *discourse marker overuse, discourse marker underuse, metadiscourse, transition markers, MA student theses*

Introduction

In literature, the terms transition markers (Hyland 2005), linking adverbials (Biber et al. 1999, Peacock 2010), linking adjuncts (Richards & Schmidt 2010), conjunctive adjuncts (Gardezi & Nesi 2009), connectors (Intraprawat & Steffensen 1995), logical markers (Mur Dueñas 2009), linkers (Thornbury 2006) or linking words (Harrison, Jakeman & Paterson 2016) all refer to single words or multi-word units that can improve textual cohesion and facilitate reader's comprehension in diverse academic genres. Transition markers, such as *however, nevertheless, in other words*, etc., help the writer organize the discourse and engage with the text (Hyland 2005), simultaneously helping the reader navigate through the discourse and the writer's ideas. In order to provide a coherent discourse, one should understand their meaning and learn their usage patterns (Yin 2016).

Nevertheless, the use of transition markers does not come easy. They may pose a challenge for students both as L2 English learners and as novice writers (e.g. Walková 2020), resulting in the overuse, underuse, or misuse of transitions (Lei 2012). These problems may be associated with their language and relate to either L1 transfer (e.g. Granger & Tyson 1996) or their interlanguage (e.g. Narita, Sato & Sugiura 2004), while the overuse or underuse of transition markers may be the result of lacking disciplinary knowledge (Shaw 2009) or related to unsuitable teaching practices due to inappropriate teaching material (e.g. Lei 2012, Walková 2020). The analysis of graduate students' writing, therefore, can provide information on the appropriateness and frequency of transition markers. From the students' perspective, this may especially be significant to L2 English graduate writers in order to improve their

writing before they enter academia and publishing process. From a pedagogical perspective, the results can help identify specific areas where EFL learners struggle and develop targeted interventions to help improve their writing skills. Additionally, comparing the use of transition markers between L2 English learners and L1 novice writers can provide insights into the differences in writing conventions between languages and cultures, which can inform teaching practices and curriculum development. The results will indicate that, apart from the reasons already mentioned in the literature, the inappropriate use and frequency may be also attributed to the lack of register awareness.

Theoretical background

Transition markers in this paper are considered metadiscourse markers following Hyland's model (2005). These devices help the reader in interpreting links between ideas and demonstrate three types of semantic relations: addition (*furthermore, moreover*), comparison and contrast (*in contrast, likewise*), and consequence (*thus, therefore*). Transition markers are very frequent in academic writing, though there is a difference in the frequency depending on the genre (e.g. Hyland 2005, Gardner & Chen 2018). These markers may have a variety of forms, and can include adverbials (*nevertheless*) and conjunctions (*although*). Conjunctions are the ones that have syntactic linking functions together with the semantic function, and they cannot draw their semantic links above the clause level (Liu 2008). The distinction is important, especially the fact that adverbials are the ones that can be moved to a non-initial position for the rhetoric effect (Gardner & Han 2018). Transition markers are devices with varying lengths, and can be one word (*moreover*) but also a multi-word marker (*on the other hand*); for that reason, it is important to consider them as items/tokens when regarding frequency. Transition markers are not always metadiscursive (Hyland 2017), and can have some other functions, like being modifiers (*however*).

L2 writers, even after being taught about academic writing, continue to make a number of mistakes in using transitions. A number of problems student writers may have with transition markers are related to their accuracy and appropriacy. The most common ones include the use of informal and conversational words and phrases in academic texts (e.g. Garner 2013, Liu 2008) and the reliance on the more familiar transitions rather than using new-learnt ones (Cotos 2014). Garner's (2013) study revealed that students do not produce register-appropriate forms of linking adverbials, which was confirmed by Larsen-Walker (2017) as well, though on a small sample. Students may use transition markers to draw logical links between incoherent ideas (Chen 2006), to misuse transition markers with the wrong semantics (Gardner & Han 2018), or with a slightly changed meaning (Gardner & Han 2018). The problem may also occur in misusing transition markers in the initial position (Granger & Tyson 1996). Additionally, the problem may be that students had learnt a bulk of transition markers in secondary level education and just continue using these same markers in higher education writing assignments as well (Leedham & Cai 2013).

Research suggests that L1 and L2 student writers overuse transition markers when compared to L1 and L2 expert writers (e.g. Chen 2006, Lei 2012, Shaw 2009). Likewise, research suggests that L2 student English writers overuse transition markers in comparison to L1 student English writers (Tapper 2005). Even though Walková (2020) challenges these and similar results due to the usage of similar and overlapping yet different concepts, set frequency count, as well as the comparison between student and expert writing, the author still acknowledges that there are some studies (e.g. Sultan 2011, Tapper 2005) that matched the genre and level of proficiency and still obtained the same results of overuse of transition markers in L2 English writing in comparison with L1 English writing. In order to compare two corpora, it is not only crucial to have the same-level writing (comparing only student writing or only expert writing in L1 and L2), but it is also important to compare transition markers in the same genre, since studies demonstrate that transition markers have different frequency in relation to the genre.

Hyland (2005) found transition markers to be more frequent in textbooks than in research articles, while Gardner and Chen (2018) found a larger frequency of transition markers in argumentative essays than in descriptive methodology sections. Chen (2006) and Lei (2012) also use their quantitative analyses to demonstrate that L2 English writers have the tendency to overuse transition markers. In an interesting analysis, Mirović and Bogdanović (2016) investigated the same writers writing about similar topics in L1 Serbian and L2 English, and found that the same writers overuse transition markers when writing in L2 English in comparison to L1 Serbian. Some researchers believe that the abundance of transition markers is unnecessary and impairs the quality of a given text (Lei 20212, Walková 2020). On the other hand, there are researchers who concluded that the overuse in student writing may be related to students' need to be explicit and follow the genre, which does not negatively affect their writing (Gardner & Han 2018). Mirović and Bogdanović (2016) also claimed that the overuse was related to how writers perceive academic genre. In other words, if they personally believe a certain genre or academic community writing places high significance on the use of transition markers, they would be keen on overusing them. To the best of our knowledge, there are no research studies comparing the use of transition markers by two corpora written by L2 student English writers with L1 Serbian and L1 Croatian, i.e. students with diverse backgrounds and similar education in academic writing. The studies usually investigate the difference between L1 and L2 English (e.g. Sultan 2011, Tapper 2005, Bogdanović & Topalov 2022). This research investigates the use of transition markers in master's theses by graduate students from Serbia and Croatia writing in English on linguistics and applied linguistics topics, comparing their frequency and appropriateness, and focusing on some typical, on the one side, and unusual and unexpected examples, on the other.

Methodology
Data corpus
   The research was conducted on a corpus of unpublished master's theses written by L1 student writers from the United Kingdom (University of Birmingham, University of York and University of Edinburgh) and the United States (Brigham Young University, City University of New York, University of California, University of North Dakota and Portland State University), and L2 student writers from Serbia (Faculty of Philosophy, University of Novi Sad) and Croatia (Faculty of Humanities and Social Sciences, Josip Juraj Strossmayer University of Osijek). The corpus was composed of the *Discussion* chapters from the students' theses, with a total of 646,659 words across three sub-corpora[15] (see Table 1).

Table 1. The distribution of word counts across three sub-corpora

	Subcorpora of master's theses, chapter *Discussion*	Word count
1	Serbian corpus – Faculty of Philosophy, University of Novi Sad, Serbia	255,451
2	Croatian corpus – Faculty of Humanities and Social Sciences, Josip Juraj Strossmayer University of Osijek, Croatia	121,170
3	Universities from the United Kingdom and the United States	270,038

---

[15] The corpus used in the paper is a segment of a larger corpus obtained during the project entitled "Hedging, Stance and Engagement in novice EFL Researchers' Academic Writing". In total, the corpus included 43 theses from Serbian students and 42 theses from Croatian students, as well as 25 theses from the UK and 25 theses from the US universities, all written in the period 2010-2020. All theses had discussion sections and all were included in the research.

Overall, the corpus included 270,038 words written by native English speakers (L1 writers) and 376,621 written by non-native speakers (L2 writers).

The graduate papers by L2 student writers included the first drafts of their master's theses, before any modifications to the original texts suggested by their mentors. The master's theses by L1 writers included randomly selected unpublished theses publicly available in online repositories, with the caveat that both L1 and L2 theses were in the fields of linguistics or applied linguistics and were, thus, of comparable genres and topics. By comparing L2 student writers with L1 student writers (rather than L1 expert writers), this study further ensured that there was no 'genre mismatch', as proposed by Walková (2020). Finally, the investigation focused on the *Discussion* chapters of the documents, as these chapters are commonly the most complex sections of theses both structurally and conceptually (Bogdanović & Topalov 2022) and it was presumed that the density of ideas and length of the chapters will prompt student writers to use metadiscourse more frequently.

Throughout the most of the 1900s, Serbia and Croatia were united in a country with the same schooling system and academic institutions. Studies in the English language were established in both countries at the same time, and the Bologna principle was applied at the same time as well. Academic writing in English is taught in higher education institutions at the graduate cycle degree, following the current trends in the field. Hence, the use of L2 English by both L1 Serbian and L1 Croatian graduate students may be comparable, as already established in the literature (e.g. Podrug, Filipović & Stančić 2014, Varga, Kovačević & Molnar 2020).

Token identification

The unit of analysis, i.e. the token in this investigation was a single word (e.g. *nevertheless*) or a phrase (e.g. *at the same time*) representing a transition marker following Hyland's (2005) model. Syntactically, the tokens came in the form of subordinators (e.g. *since*), adverbial connectors (e.g. *however*, *consequently*, *by the way*) or certain clause-integrated expressions (e.g. *as a result, in the same way*) (see Tapper 2005, Winter 1977). The identification of tokens followed a two-step procedure. In the first step, the authors relied on Hyland's (2005) comprehensive list of transition markers in order to locate all of the instances of marker use in master's theses. Hyland's (2005) taxonomy was used since it already proved to be valid in this kind of comparison (Bogdanović & Topalov 2022). Using AntConc, a freeware corpus analysis toolkit, transition markers were extracted and prepared for analysis as they occurred in the theses. During the second step, the authors manually removed from the corpus those instances of targeted words and phrases that were not used for metadiscoursal purposes. In order to assure reliability of the coding process, before the collection of data, the authors attempted to establish clear criteria for what constitutes metadiscourse. More to the point, during the analysis, the authors independently assessed the data allowing for comparison of inter-rater agreement. While in the majority of cases the process of the manual removal of tokens that were not used for metadiscoursal purposes was fairly straightforward, in a few instances where there were discrepancies in the coding, it was necessary to discuss the examples and re-focus on the criteria so that the discrepancies could be resolved. Lastly, even though according to Hyland (2005) two additional transition markers should have been included in the analysis (*result in* and *the result is*), the different syntactic realization of these markers compared to all the other markers included in the analysis prompted their exclusion.

Statistical analysis

Absolute frequency was determined by marking down each appearance of an item in a corpus, following which relative frequencies were calculated per 100,000 words in order to enable a comparison of frequencies across sub-corpora. Assessment of statistical differences in frequency counts between L1

and L2 student writers was conducted by means of log-likelihood tests using the Log Likelihood Wizard by Paul Rayson (University Centre for Computer Corpus Research on Language, Lancaster University).

Results and discussion

Following the steps of token identification described above, the final corpus under investigation consisted of a total of 8192 uses of transition markers across all three sub-corpora (2985 transition markers used by L1 student writers and 5256 transition markers used by L2 student writers – 3580 uses by the Serbian subsample and 1676 by the Croatian subsample). The overall frequencies (absolute frequencies) and relative frequencies (per 100,000 words) for individual transition markers are shown in Table 2.

Table 2. The absolute and relative frequencies of transition markers across sub-corpora.

Transition marker	US/UK		SRB		CRO	
	AF	RF	AF	RF	AF	RF
accordingly	1	0.37	12	4.70	4	3.30
additionally	58	21.48	43	16.83	14	11.55
again	60	22.22	141	55.20	60	49.52
also	362	134.06	641	250.93	352	290.50
alternatively	3	1.11	3	1.17	0	0.00
although	170	62.95	151	59.11	76	62.72
as a consequence	4	1.48	3	1.17	0	0.00
as a result	14	5.18	12	4.70	1	0.83
at the same time	9	3.33	27	10.57	11	9.08
because	9	3.33	31	12.14	10	8.25
besides	2	0.74	4	1.57	3	2.48
by contrast	24	8.89	1	0.39	0	0.00
consequently	10	3.70	39	15.27	6	4.95
conversely	10	3.70	3	1.17	1	0.83
equally	30	11.11	29	11.35	27	22.28
even though	52	19.26	84	32.88	60	49.52
further	6	2.22	15	5.87	3	2.48
furthermore	75	27.77	75	29.36	57	47.04
hence	45	16.66	42	16.44	6	4.95
however	412	152.57	385	150.71	162	133.70
in addition	80	29.63	52	20.36	30	24.76
in contrast	52	19.26	16	6.26	6	4.95
in the same way	9	3.33	7	2.74	1	0.83
leads to	12	4.44	20	7.83	7	5.78
likewise	8	2.96	11	4.31	4	3.30
moreover	41	15.18	105	41.10	26	21.46
nevertheless	38	14.07	42	16.44	13	10.73

nonetheless	7	2.59	14	5.48	2	1.65
on the contrary	1	0.37	11	4.31	4	3.30
on the other hand	66	24.44	157	61.46	34	28.06
rather	187	69.25	122	47.76	55	45.39
similarly	61	22.59	53	20.75	17	14.03
since	120	44.44	180	70.46	166	137.00
so as to	8	2.96	10	3.91	4	3.30
still	56	20.74	133	52.06	100	82.53
thereby	31	11.48	7	2.74	2	1.65
therefore	152	56.29	227	88.86	85	70.15
though	117	43.33	24	9.40	14	11.55
thus	185	68.51	139	54.41	33	27.23
whereas	58	21.48	109	42.67	32	26.41
while	316	117.02	389	152.28	173	142.77
yet	16	5.93	0	0.00	14	11.55
TOTAL markers	2978	1105.39	3569	1401.44	1675	1383.18
AF – Absolute frequency; RF – Relative frequency per 100,000 words.						

The overall frequency results of this study support previous research findings according to which L2 English student writers overuse transition markers overall compared to L1 student writers (Bolton et al. 2002, Tapper 2005), and that, similarly, L2 English writers overuse most markers compared to L1 English writers (Sultan 2011).

In analyzing statistically significant results, Table 3 displays the comparison of the use of individual transition markers by L2 writers against the recorded use of markers by L1 writers. Compared to L1 student writers, both L2 student writers from Serbia and L2 student writers from Croatia statistically significantly overuse a total of ten transition markers. The reported Log-Likelihood coefficients range from slight overuse (*accordingly, at the same time, because* and *while* for the Croatian student writers) to highly noted overuse (*again, also*, *since* and *still* for both the Serbian and the Croatian sub-corpora and *even though* for the Croatian sub-corpus). In terms of the total volume of transition markers used by Serbian and Croatian student writers, there is also a highly pronounced overuse of markers found compared to L1 student writers.

Table 3. Statistically overused transition markers compared to English L1 student writers.

Item	SRB Log Likelihood	CRO Log Likelihood
accordingly	11.59[***]	5.11[*]
again	38.24[****]	18.77[****]
also	94.91[*****]	103.82[****]
at the same time	10.45[***]	4.93[*]
because	14.05[***]	3.84[*]
even though	9.48[**]	24.5[****]
on the contrary	10.32[**]	5.11[*]
since	15.64[****]	89.03[****]
still	36.72[****]	72.24[****]

while	12.17[***]	4.33[*]
TOTAL markers	92.10[****]	52.73[****]
[*]p<.05, [**]p < .01, [***]p < .001, [****]p < .0001		

Examples 1, 2 and 3 illustrate the typical use of transition markers found in L2 student writers' theses.
Example 1:

> **However**, even if less significantly than mastery-approach, mastery-avoidance was **still** in a negative correlation with the surface approach (and in a positive correlation with the deep approach), meaning that this orientation can **still** be more adaptive than performance goals, whose positive correlations to these approaches are to be discussed shortly. (NS S 20 RD[16])

Example 2:

> **Nevertheless**, it is apparent that **even though** the passive voice is not something unknown to the Serbian speakers, they **also** had some difficulty recognizing whether the sentences in the first section were in the active or in the passive voice. **Even though** there is a difference between the two test groups, we **still** have to take into account what Marchman, V. A., Martínez-Sussmann, C., & Dale, P. S. (2004) have discussed in their study about the nature of grammatical development. (NS BR 3 RD)

Example 3:

> Apart from those official bodies, the agentive function can **also** be assigned to people, namely the inhabitants of the United States, and such examples are mostly referred to elections as the citizens of the United States are those who elect the president of America. Even if the passive in such cases is mainly used because of the transparency of an agent, the sentences vary in focus. **In particular**, the first sentence tells about the situation in which the president is out of office for some specific reason and the period in between. **Accordingly**, it is important for the president to be chosen as soon as possible and the people are put aside. (NS BR 8 RD)

What can be observed from the examples is that L2 student writers, more often than not, place transition markers sentence-initially, which is in line with Aarts and Granger (1998) and Altenberg and Tapper (1998). All three examples also demonstrate the tendency of L2 writers towards a higher density of transition markers, which supports the conclusions of Bolton and associates (2002), Green and associates (2000), Milton and Tsang (1993), Shaw (2004), Shaw and Liu (1998), whereas a similar density has not been found in our sub-corpus of L1 writers. Interestingly, the examples also indicate the overuse of a small set of transition markers (*still* in the first example, *even though* in the second), suggesting invariability of the use of metadiscoursive elements by individual L2 student writers. If we consider the relative frequencies of the ten most frequently used transition markers among L1 and L2 student writers (Table 4), it is evident that, even though *also, while* and *however* are among the most popular choices in all three sub-corpora, L1 student writers not only use them significantly less frequently, as demonstrated by the relative frequencies of markers, but also display overall greater variability in transition marker use, as demonstrated by the overall percentages. L2 student writers, on the other

---

[16] The corpus used in the paper is a segment of a larger corpus. While coding the parts of theses, the following codes were agreed upon: first two letters refer to the Serbian university of Novi Sad (NS), Croatian university in Osijek (OS), UK universities (UK) and US universities (US). Second code are initials of the project participant who first divided theses into sections. Third is the number of the thesis. Finally, last letters refer to the section of the thesis, which in this paper are all RD (discussion).

hand, tend to prefer a smaller set of connectors in their writing and rely more heavily on their use, a finding that accords with Chen (2006). It is also noteworthy to observe that the overuse of similar transition markers is common to some other cultures as well. For example, Martínez-Hernández (2022) discovers that Spanish undergraduate students overuse *because* and *also*, while the Han CH-EN corpus (Han & Gardner 2021) displays a great frequency of *however* and *since* by Chinese student writers.

Table 4. Ten most frequently used transition markers across subcorpora.

US/UK	RF	%	SRB	RF	%	CRO	RF	%
however	412	10.34	also	641	17.91	also	352	21.00
also	362	9.08	while	389	10.87	while	173	10.32
while	316	7.93	however	385	10.75	since	166	9.90
rather	187	4.69	therefore	227	6.34	however	162	9.67
thus	185	4.64	since	180	5.03	still	100	5.97
although	170	4.27	on the other hand	157	4.39	therefore	85	5.07
therefore	152	3.81	although	151	4.22	although	76	4.53
since	120	3.01	again	141	3.94	again	60	3.58
though	117	2.94	thus	139	3.88	even though	60	3.58
in addition	80	2.01	still	133	3.72	furthermore	57	3.40
RF – Relative frequency per 100,000 words; % of total transition markers in a sub-corpus.								

Compared to L1 student writers, both subsamples of L2 student writers underuse the transition markers in Table 5.

Table 5. Statistically underused transition markers compared to English L1 student writers.

Item	SRB Log Likelihood	CRO Log Likelihood
by contrast	25[****]	17.79[****]
in contrast	18.12[****]	14.03[***]
rather	10.4[**]	8.15[**]
thereby	15.07[***]	12.58[***]
though	61.76[****]	30.5[****]
thus	4.25[*]	29.17[****]
[*]p<.05, [**]p < .01, [***]p < .001, [****]p < .0001		

Of the statistically underused transition markers, four indicate concession and contrast (*by contrast, in contrast, rather* and *though*) and two indicate consequence (*thereby* and *thus*). Other studies also found similar use by L2 student writers, with adversative markers typically underused (Granger & Tyson 1996, Green et al. 2000, Milton & Tsang 1993). Shaw (2009) proposes that this could be explained by discourse tendencies among L2 student writers that primarily include listing and addition, rather than a tight argument structure. We also believe that the genre of master's theses, in particular its length, may be an overwhelming task for novice L2 writers, who then resort to addition in order to meet the demands in terms of quantity, resulting in the overuse of additive elements (see Table 3) and underuse of concessive, contrastive and consequence elements (see Table 5). This conclusion is congruent with Biber and associates (1999) and Gao (2016), who propose that, since contrastive transition markers

signal concessive, i.e. complicated relationships between discourse units, they may prove difficult for learners to manipulate, which is why learners tend to avoid them.

It is also interesting that *even though* is overused, whereas *though* is underused, when both transition markers signal concession or contrast if used as conjunctions. The underuse of *though* may be due to it being (mistakenly) considered less formal by L2 English writers and to its additional function as an adverbial which can, unlike *even though*, appear in non-initial positions (Quirk et al. 1985). This might raise some confusion with respect to its use; hence, one can observe the students' reluctance to use it in their theses, as it has been found in this research.

Compared to L1 student writers, only Serbian student writers overuse the transition markers in Table 6, with *further* slightly overused and the other transition markers highly overused.

Table 6. Overused transition markers in the Serbian sub-corpus.

Item	SRB Log Likelihood
consequently	16.77****
further	4.5*
moreover	32.7****
on the other hand	43.47****
therefore	19.4****
whereas	18.79****
*p<.05, **p < .01, ***p < .001, ****p < .0001	

Examples that follow illustrate that Serbian writers use these markers both appropriately and inappropriately.

Example 4:
> Regardless of this interference by S3, M does not decide to withdraw but actually keeps talking until he asks the entire question and completes his turn. **Consequently**, M's refusal to simply yield the turn creates a brief overlap of 0.3s and leads S3 to yield instead and let M complete his question. (NS S 10 RD)

Example 5:
> The exclusion of certain groups in texts and pictures might imply that the excluded group is insignificant and it does not contribute to society. **Consequently**, it was found that a few texts in the selected textbooks display activities that involve minority or multiethnic groups as main characters, while majority male characters have dominant roles. (NS BR 13 RD)

In Example 4, *consequently* coherently joins the ideas from two sentences, indicating a logical link between the ideas, where the latter is the result, i.e. the consequence of the former. In Example 5 the logical connection of consequence between the ideas in the two sentences is tenuous at best, and it would appear that the writer is attempting to impose cohesive ties where no such ties exist.

Example 6:
> Nevertheless, although the T-test proved a statistically significant difference between the first and second-generation of Serbian-Americans in two places, the mean scores show that the second-generation respondents have higher beliefs on the future EV of the Serbian language than the first generation. **Moreover**, another set of question testing the Exo-Centric EV beliefs showed higher mean scores with the second-generation. (NS BR 1 RD)

Example 7:

> **Moreover**, not only are the numbers of strategic pauses the same, but also the filled pauses (30 by women and 30 by men). (NS S 10 RD)

The additive function of *moreover* evident in Example 6 is appropriately used as an element of cohesion, though it is worth noting that every single instance of the use of this transition marker among Serbian student writers is found sentence-initially, indicating invariability and, likely, inexperience and lack of familiarity with its potential sentence positions. While additives are normally not a problem area for L2 writers, as compared to markers of concession or inference (Carrell 1982), syntactic misuse is sometimes evident, as in Example 7.

Compared to L1 student writers, the results reveal that Croatian student writers specifically overuse *equally* and *furthermore* (see Table 7).

Table 7. Overused transition markers in the Croatian sub-corpus.

Item	CRO Log Likelihood
equally	6.67**
furthermore	17.2****
*p<.05, **p < .01, ***p < .001, ****p < .0001	

In addition to the statistically significant overuse of *furthermore*, a transition marker from the group of additive markers, and *equally*, marker from the group of appositive markers, which have, thus far, been found to be overused by L2 writers (Granger & Tyson 1996, Narita et al. 2004), a qualitative view at the examples of their use (Examples 8 and 9) again illustrates that L2 student writers typically place transition markers sentence initially – a finding that is corroborated by previous research (Aarts & Granger 1998, Altenberg & Tapper 1998).

Example 8:

> **Furthermore**, as the results in Table 6. confirm, there are no significant differences in the mean values among neither of the individual facets of self-regulation capacity for males and females. (OS V 7 RD)

Example 9:

> **Furthermore**, the difficulties the learners encounter while learning new vocabulary might reduce their self-efficacy in vocabulary learning, reduce effective self-regulation strategies and cause lack of vocabulary knowledge. (OS V 7 RD)

Turning to the transition markers that were underused by only one of the sub-corpora of L2 student writers, Table 8 indicates the underuse of markers among Serbian students, while Table 9 shows the markers underused by Croatian students specifically.

From Table 8, it is clear that, compared to L1 student writers, Serbian students slightly underuse *conversely* and *in addition*, whereas they highly underuse *yet.*

Table 8. Underused transition markers in the Serbian sub-corpus.

Item	SRB Log Likelihood
conversely	3.6*
in addition	4.53*
yet	21.3****
*p<.05, **p < .01, ***p < .001, ****p < .0001	

If we are to consider that the underused markers all belong to different groups of linking adverbials, as proposed by Hyland (2005) – *conversely* is a marker of contrast, *in addition* is an additive marker and *yet* is a contrastive marker – the interpretation proposed earlier that there is a noted tendency of invariability of the use of metadiscoursive elements by individual L2 student writers (Chen 2006) gains further ground.

Croatian students, on the other hand, slightly underuse *additionally,* as well as the clause-integrated expression *as a result*, whereas they somewhat underuse *hence* (see Table 9).

Table 9. Underused transition markers in the Croatian sub-corpus.

Item	CRO Log Likelihood
additionally	4.88[*]
as a result	5.38[*]
hence	10.48[**]
[*]p<.05, [**]p < .01, [***]p < .001, [****]p < .0001	

The finding that three out of four markers underused by L2 Croatian writers are markers of result or inference, in light of previous research (Carrell 1982, Granger & Tyson 1996, Narita et al. 2004) and the tendencies noted thus far in this study, is not surprising.

Conclusion

Overall, the results reported here confirm many of the conclusions put forth by previous research on L2 English student writing from different language background. Of the most important is certainly the general overuse of transitive markers by L2 student writers both from Serbia and from Croatia compared to L1 student writers, which corroborates previous findings by Bolton and associates (2002), Field and Yip (1992), Leedham and Cai (2013), Lei (2012) and Narita and associates (2003) among others. While some attribute the overuse to students' efforts to superficially emulate the academic style (Crewe 1990, Gao 2016), others believe it can be ascribed to local conventions and preferences of individual teachers (Gardezi & Nesi 2009). The use of transitions may include misusing transition markers in initial position (Granger & Tyson 1996) or using informal and spoken transition markers in formal writing (Walková 2020). In particular, consistent with the literature (Elahi & Badaleh 2013, Granger & Tyson 1996, Lei 2012, Narita et al. 2004), this research has found the overuse of addition and underuse of contrast and result/inference. The examples of the use of transitive markers by L2 student writers further reveal a tendency towards higher density of markers, which also accords with previous research (Bolton et al. 2002, Green et al. 2000, Milton & Tsang 1993, Shaw 2004, Shaw & Liu 1998). A possible reason for this is the overwhelming number of ideas that need to be coherently elaborated over a relatively condensed word span (Bogdanović & Topalov 2022, Gardner & Han 2018, Shaw 2009), making the overuse and density in L2 student writing characteristic functions of student genres (Walková 2020).

The results obtained may attribute to a more detailed study on transition markers in academic writing courses, not only in Serbian and Croatian environments, but also in graduate students' writing in general. Since the results correspond to similar frequency of use in other cultures, the focus on overused and underused transition markers may improve students' writing, as well as their publishing possibilities. The study is valuable since it enriches the current descriptive panorama on metadiscourse use by students and experts in academic writing, and particularly on the use of transition markers, fundamental in academia to put forth specialized knowledge. As the results of this study accord with similar other studies conducted in different cultural contexts, it is possible that Serbian and Croatian student writers, much like their peers in Hong Kong (Bolton et al. 2002), mainland China (Field & Yip 1992, Han &

Gardner 2021, Leedham & Cai 2013, Lei 2012), Japan (Narita et al. 2003), Spain (Martínez-Hernández 2022) and Sweden (Tapper 2005) to name a few, have different conventions and expectations for the use of transition markers in writing. Understanding how cultural factors influence language use may be particularly important in a professional and academic setting where effective communication is essential. Since the existence of cultural biases in the use of transition markers may put writers from certain cultures at a disadvantage when they are attempting to write for Anglophone audiences, a timely inclusion of strategies designed to support L2 graduate writers may help address the points of differences and better prepare the students for their future writing tasks. As in similar smaller corpus studies, although the conclusions may be respectable for general observations, the research could benefit from a larger corpus, including theses from other universities in Serbia and Croatia, as well as more theses from the universities in the UK and US. The research could also benefit from investigating the teaching practices in the beforementioned universities, since the alterations in teaching may lead to broadening the metadiscoursive repertoires of graduate students, raising awareness of the importance of the variety of transition markers in academic discourse.

References

Aarts, J., Granger, S. (1998). Tag sequences in learner corpora: A key to interlanguage grammar and discourse. In: S. Granger (Ed.), *Learner English on computer* (pp. 132-141). London& New York: Longman.

Altenberg, B., Tapper, M. (1998). The use of adverbial connectors in advanced Swedish learners' written English. In S. Granger (Ed.) *Learner English on computer* (pp. 80-93). London & New York: Longman.

Biber, D., Johansson, S., Leech, G., Conrad, S., Finegan, E. (1999). *Longman grammar of spoken and written English*. Harlow, England: Longman.

Bogdanović, V., Topalov, J. (2022). Transition markers as rhetoric devices in graduate students' writing. In S. Gudurić, B. Radić-Bojanić & P. Mutavdžić (Eds.). *Languages and Cultures in Time and Space* 10 (pp. 395-404). Novi Sad: Faculty of Philosophy.

Bolton, K., Nelson, G., Hung, J. (2002). A corpus-based study of connectors in student writing: Research from the International Corpus of English in Hong Kong (ICE-HK). *International Journal of Corpus Linguistics*, 7(2), 165-182.

Carrell, P. L. (1982). Cohesion is not coherence. *TESOL Quarterly*, *16*(4), 479-488. https://doi.org/10.2307/3586466.

Chen, C. W. Y. (2006). The use of conjunctive adverbials in the academic papers of advanced Taiwanese EFL learners. *International Journal of Corpus Linguistics,* 11(1), 113-130.

Cotos, E. (2014). Enhancing writing pedagogy with learner corpus data. *ReCALL,* 26(2), 202-224.

Elahi, M., Badeleh, M. T. (2013). A contrastive study on transitional markers in English language teaching research articles written by English and Persian academic writers. *Journal of Language Teaching & Research*, 4(4), 839-844.

Field, Y., Yip, L. M. O. (1992). A comparison of internal conjunctive cohesion in the English essay writing of Cantonese speakers and native speakers of English. *RELC Journal,* 23, 15-28.

Gao, X. (2016). A cross-disciplinary corpus-based study on English and Chinese native speakers' use of linking adverbials in academic writing. *Journal of English for Academic Purposes*, 24, 14-28.

Gardezi, S. A., Nesi, H. (2009). Variation in the writing of economics students in Britain and Pakistan: The case of conjunctive ties. In: M. Charles, S. Hunston, & D. Pecorari (Eds.), *Academic writing: At the interface of corpus and discourse* (pp. 236-250). London: Continuum.

Gardner, S., Han, C. (2018). Transitions of contrast in Chinese and English university student writing. *Educational Sciences: Theory and Practice*, 18(4), 861-882.

Garner, J. R. (2013). The use of linking adverbials in academic essays by non-native writers: How data-driven learning can help. *CALICO Journal,* 30(3), 410-422.

Granger, S., Tyson, S. (1996). Connector usage in the English essay writing of native and non-native EFL speakers of English. *World Englishes,* 15(1), 17-27.

Green, C.F., Christopher, E.R., Mei, J.L.K. (2000). The incidence and effects on coherence of marked themes in interlanguage texts: A corpus- based enquiry. *English for Specific Purposes,* 19, 99-113.

Han, C., Gardner, S. (2021). *However* and other transitions in the Han CH-EN corpus. *Journal of English for Academic Purposes*, 51, 100984.

Harrison, M., Jakeman, V., Paterson, K. (2016). *Improve your grammar: The essential guide to accurate writing* (2nd ed.). London: Macmillan.

Hyland, K. (2005). *Metadiscourse*. London: Continuum.

Hyland, K. (2017). Metadiscourse: What is it and where is it going? *Journal of Pragmatics*, 113, 16-29.

Intaraprawat, P., Steffensen, M. S. (1995). The use of metadiscourse in good and poor ESL essays. *Journal of Second Language Writing,* 4, 253-272.

Larsen-Walker, M. (2017). Can Data Driven Learning address L2 writers' habitual errors with English linking adverbials?. *System,* 69, 26-37.

Leedham M., Cai G. (2013). Besides … on the other hand: Using a Corpus Based Approach to Explore the Influence of Teaching Materials on Chinese Students' Use of Linking Adverbials. *Journal of Second Language Writing*, 22, 374-389.

Lei, L. (2012). Linking adverbials in academic writing on applied linguistics by Chinese doctoral students. *Journal of English for Academic Purposes,* 11, 267-275.

Liu, D. (2008). Linking adverbials: An across-register corpus study and its implication. *International Journal of Corpus Linguistics,* 13(4), 491-518.

Martínez-Hernández, A. I. (2022). Using a free corpus tool for time-efficient feedback on English as a foreign language reports. *Miscelánea*, 66, 13-39.

Mirović I. & Bogdanović V. (2016). Use of metadiscourse in research articles written in L1 and L2 by the same authors. In: S. Plane et al. (Eds.), *Recherches en écritures: regards pluriels. Recherches Textuelles*, No. 13 (pp. 435-456). Metz: Université de Lorraine.

Milton, J., Tsang, E.S. (1993). A corpus-based study of logical connectors in EFL students' writing: Directions for future research. In: R. Pemberton & E.S. Tsang (Eds.), *Studies in lexis* (pp. 215-246). Hong Kong: HKUST Language Centre.

Mur Dueñas, P. (2009). Designing EAP materials based on intercultural corpus analyses: The case of logical markers in research articles. *Revista de Lingüística y Lenguas Aplicadas,* 4, 125-135.

Narita, M., Sato, C., Sugiura, M. (2003). The use of linking adverbials in the English essay writing of Japanese EFL learners. In: M. Murata, S. Yamada, & Y. Tono (Eds.), *ASIALEX '03 Tokyo proceedings* (pp. 440-444). The Asian Association for Lexicography.

Narita, M., Sato, C., Sugiura, M. (2004). Connector usage in the English essay writing of Japanese EFL learners. In: M. T. Lino et al. (Eds.), *Language resources and evaluation conference proceedings* (pp. 1171-1174). Lisbon: Universidade Nova de Lisboa.

Peacock, M. (2010). Linking adverbials in research articles across eight disciplines. *Ibérica,* 20, 9-34.

Podrug, N., Filipović, D., Stančić, I. (2014). Analysis of cultural differences between Croatia, Brazil, Germany and Serbia. *Economic Research – Ekonomska istraživanja*, 27(1), 818-829.

Quirk, R., Greenbaum, S., Leech, G., Svartvik, J. (1985)*. A Comprehensive Grammar of the English Language*. London: Longman.

Richards, J. C., Schmidt, R. W. (2010). *Longman Dictionary of Language Teaching and Applied Linguistics* (4th ed.). Harlow: Pearson.

Shaw, P. (2004). Sentence openings in academic economics articles in English and Danish. *Nordic Journal of English Studies*, *3*(2), 67-84.

Shaw, P. (2009). Linking adverbials in student and professional writing in literary studies: What makes writing mature. In: M. Charles, S. Hunston, & D. Pecorari (Eds.), *Academic writing: At the interface of corpus and discourse* (pp. 215-235). London: Continuum.

Shaw, P., Liu, E.T. (1998). What develops in the development of second-language writing? *Applied Linguistics,* 9(2), 225-254.

Sultan, A. H. (2011). A contrastive study of metadiscourse in English and Arabic linguistics research articles. *Acta Linguistica*, 5, 28-41.

Tapper, M. (2005). Connectives in advanced Swedish EFL learners' written English – preliminary results. In: F. Heinat & E. Klingvall (Eds.), *Working papers in linguistics* (pp. 115-144). Lund: Lund University.

Thornbury, S. (2006). *An A - Z of ELT*. London: Macmillan.

Varga, M., Kovačević, P., Molnar, D. (2020). Establishing the criteria for building comparable corpora on academic writing in L1 and L2 English. In: S. Gudurić, B. Radić-Bojanić & P. Mutavdžić (Eds.) *Languages and Cultures in Time and Space* 9(1) (pp. 145-155). Novi Sad: Faculty of Philosophy.

Walková, M. (2020). Transition markers in EAP textbooks. *Journal of English for Academic Purposes*, 46, 1-15.

Winter, E.O. (1977). A clause-relational approach to English texts: A study of some predictive lexical items in written discourse. *Instructional Science*, 6, 1-92.

Yin, Z. (2016). Register-specific meaning categorization of linking adverbials in English. *Journal of English for Academic Purpose,* 22, 1-18.