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So, Transitions: Linking Adverbial Use of University ESL Students

This research article summarizes and discusses differences found in the use of linking adverbials, such as *so, yet,* and *however,* between 1st-year composition students and final-year students. The methods describe both automated and manual identification of linking adverbials using computerized learner corpora, and the results include pedagogical and further research implications. Assignment particulars and other learner objectives appeared to play a role in the relative overuse of certain adverbials in addition to conversational adverbials occurring more often in the compositions of the 1st-year students. The findings also show an increase in academic transition use during the semester-long period of the study. Significant differences were found in the use of adverbial pairs with nuanced differences, such as *yet* and *however.* The article concludes with pedagogical implications and suggestions for how to improve teaching practices based on the improvement found across the course of the semester.

Introduction

Linking sentences into paragraphs and paragraphs into academic essays can be a daunting task for first-year university ESL students who may have limited experience and familiarity with the genre. Students will learn to use different devices, such as conjunctions and linking adverbials, to connect their ideas to enhance cohesion and coherence in their writing. Linking adverbials differ from conjunctions in that they explain semantic relationships between different lengths of discourse (Biber, Conrad, & Leech, 2002). These small, yet important, chunks of language pose many difficulties for English language learners and the use of these adverbials must be closely examined in order to provide effective instruction that will guide these students to the highest level of proficiency possible by the

end of their undergraduate careers. Classroom-based research and the use of learner corpora provide teachers and researchers with the tools needed to assess the gains of students as well as the areas that require additional instruction and modifications to current instruction to allow for further improvement.

Review of the Literature

While there are many subjective qualities of what exactly constitutes effective writing, prior corpus research has pointed to the successful use of cohesive devices such as linking adverbials, which include lexical adverbials such as *however* and phrasal adverbials such as *on the other hand* (Chiang, 2003; Liu & Braine, 2005; Yang & Sun, 2012). Liu & Braine (2005) specifically noted a strong correlation between the number of cohesive devices and overall writing quality. Regarding correct use of linking adverbials, Crewe (1990) posits that while appropriate use contributes to successful writing, inappropriate use of linking adverbials can detract more so from writing quality, but also notes that when readers encounter an unexpected or inappropriate linking adverbial, they can mentally substitute the adverbial they were anticipating. Minor differences aside, both sets of claims get at the same point that writers must be able to use linking adverbials appropriately.

Much of the existing research concerning linking adverbials focuses on whether or not English language learners overuse linking adverbials when compared to their native-speaking counterparts, which Granger and Tyson (1996) describe as an "overuse hypothesis" pertaining to the linking adverbial habits of native French speakers. Their own research claims to disprove this hypothesis as the French-speaking students underused linking adverbials compared to native speakers. Ishikawa's (2011) study of Asian students found the same to be true. However, other studies report nonnative speakers' (NNSs') overuse of linking adverbials when compared to native speakers (Lei, 2012) or professional writers (Shaw, 2009). A more widely agreed-upon finding is that language learners rely on a smaller collection of linking adverbials compared to native speakers and expert writers and selectively over- and underuse linking adverbials (Ishikawa, 2011; Leedham & Cai, 2013; Lei, 2012; Vincela, 2013).

Fewer studies have been done comparing different groups of nonnative speakers. Granger and Tyson (1996) compiled a corpus of papers written by students with various native languages and suggest that transfer issues play a significant role in the difficulty of linking adverbial acquisition in addition to the universal difficulties all learners of English experience. However, Leedham and Cai (2013) and Lei

(2012) conducted their respective studies with Chinese students and found that the observed differences were due more to the instructional methods and materials of the teachers at these institutions than to the students' transfer issues. One study (Yang & Sun, 2012) compared Chinese EFL students of higher and lower proficiency levels and found that students' repertoires of linking adverbials seemed to increase through time, suggesting that there is at least some cause to give students hope.

Research Questions

Despite there being a large number of studies and an equally large number of different findings from around the world regarding linking adverbial use, there was a very apparent lack of research concerning linking adverbial use among ESL students at the university level. With the overall goal of gaining insight into how to help these students improve, the following research questions were generated:

1. How does linking adverbial use change throughout a semester-long first-year composition course?
2. Do lower-proficiency NNS university students over- or underuse linking adverbials when compared to higher-proficiency NNS university students?
3. What specific linking adverbials are comparatively over- or underused by these two groups?

Methodology

To analyze linking adverbial use through the course of a semester and also to compare these findings to the linking adverbial use of another group of students, I compiled four corpora for this study using The Sketch Engine (n.d), described by Kilgarriff, Rychly, Smrz, and Tugwell (2004). One corpus was compiled for each of the three essay assignments from students in a first-year composition course for nonnative English-speaking students, henceforth referred to as "FY students." These corpora were compiled individually in order to more easily assess linking adverbial use for each essay assignment and then added together for overall analysis. The first essay assignment could be described as a narrative assignment, and the second and third assignments were argumentative essays.

The fourth corpus was compiled using argumentative essays from the Michigan Corpus of Upper-level Student Papers, or MICUSP (2009). MICUSP is a collection of "A grade" papers written by senior undergraduate students and graduate students from the University of Michigan. For this study, I selected only argumentative essays written

by nonnative students in their last year of their undergraduate studies, and these students will be referred to as "LY students" in this article. Only argumentative essays were chosen in order to maintain consistency in terms of genre because as Liu (2008) found, linking adverbial use can vary depending on register and genre. For all four corpora, the essays were removed of any identification headings, titles, and reference pages before being entered into The Sketch Engine. Table 1 shows the composition of each corpus, including mean words per essay and mean words per sentence. Both of these averages were higher in the MICUSP corpus, immediately suggesting a higher level of complexity in the papers by the LY students.

Table 1
Composition of Corpora

	FY paper 1	FY paper 2	FY paper 3	All FY papers	LY students
Essays	25	24	23	72	13
Words	26,701	23,183	24,763	74,647	23,701
Sentences	1,509	1,173	1,321	4,003	905
Words per essay	1,068.04	965.96	1,076.65	1,036.76	1,823.15
Words per sentence	17.69	19.76	18.75	18.65	26.19

There are several lists of linking adverbials, but for this study, I chose the list provided by Biber et al. (2002). This list was created using the Longman Spoken and Written English Corpus, which contains roughly 40 million words; the list itself comprises linking adverbials that occur more than 100 times per million words. Two linking adverbials, *additionally* and *nonetheless*, were added as close synonyms to the adverbials *in addition* and *nevertheless*, which were present in this list. Based on Ishikawa's (2011) finding that nonnative speakers tend to avoid using the adverbials *yet*, *rather*, and *indeed* when compared to native speakers, *indeed* was added to the list as well. While this list is by no means comprehensive, it does contain 24 of the most commonly used linking adverbials, which should be adequate to provide some insight into the use of linking adverbials.

Once the corpora were compiled and the linking adverbials were selected for analysis, I began tabulating frequencies of the 24 linking adverbials throughout the four corpora. Manual and qualitative assessment of what constituted a linking adverbial was necessary for several

of the words. The Sketch Engine includes part-of-speech tagging during the compiling process, which was compared to my manual assessment. Each linking adverbial was searched for separately and analyzed manually to ensure correct identification with uses of these words as linking adverbials being recorded, and overuse/underuse of any linking adverbials was calculated using an online log likelihood calculator, which is described by Rayson, Berridge, and Francis (2004).

Results and Discussion

A complete table of my findings can be found in the Appendix, but Table 2 shows the overall use of linking adverbials and can be used to shed light on the first research question. There was minimal change during the course of the entire semester for the FY students as adjusted frequency went up from 4.57 linking adverbials per 1,000 words to 4.69 linking adverbials per 1,000 words. As linking adverbials are used to connect sentences rather than individual words, it is also important to look at adjusted frequency normalized for sentence count. In this study, there was a small rise in this number as well. While not a given fact, it is assumed that students' ability will increase throughout a course, so this increase may support the positive correlation between the number of cohesive devices and overall writing quality found by Liu and Braine (2005). However, this increase in frequency for these students was minimal and is not strong enough to be used as proof or reason for any improvement.

The more striking figures in these results are the frequencies for paper 2, which are significantly higher than for either paper 1 or paper 3. For these frequencies, it is important to provide more information about the teaching context for these essays. As this class was a first-year composition course, elements of essay writing were introduced to students in stages throughout the semester. While students clearly had an understanding of linking adverbials at the beginning of the course, as demonstrated by the frequency counts for paper 1, the use of linking adverbials was introduced by the instructor for paper 2. The students were told the importance of using linking adverbials; instructed in their meaning, differences, and use; and given a list of linking adverbials typically used in academic writing. From a research perspective, one might conclude that the FY students overused linking adverbials as the adjusted frequencies were significantly higher in paper 2 than either paper 1 or 3. However, from a pedagogical standpoint, these numbers are a wonderful piece of information as it shows an overwhelming willingness on behalf of the students to make use of the information they were learning in class. The sharp decline be-

tween papers 2 and 3 may also be related to instruction methods, as the FY students were taught more about when to use and not use linking adverbials.

Regarding the second research question and whether the FY students over- or underused linking adverbials compared to the LY students, the results are slightly more complex. The adjusted frequencies per word show that the FY students did use more linking adverbials than the more proficient LY students, which is in line with Shaw's (2009) findings of first-year students compared to professional writers but not with Yang and Sun's (2012) finding of an increase through time for students. However, when adjusted for linking adverbials used per 100 sentences, the results show that the LY students used more linking adverbials than the FY students. This may be due to the LY students' writing longer and more complex sentences than the FY students. These figures should not be ignored as linking adverbials are used to connect sentences and independent clauses, which in turn form paragraphs, which in turn form complete essays. Analysis of linking adverbial use more specific than just general over- or underuse is required to gain insight into the habits of burgeoning nonnative writers.

Table 2
Total Linking Adverbial (LA) Use

	FY paper 1	FY paper 2	FY paper 3	All FY papers	LY students
Raw frequency	122	169*	116	407	99
LA per 1,000 words	4.57	7.29	4.69	5.45	4.18
LA per 100 sentences	8.10	14.40	8.80	10.20	10.94

Note. Significance figures provided by Rayson's log likelihood calculator (http://ucrel .lancs.ac.uk/llwizard.html): * = $p < 0.001$.

Regarding the third research question, there were two groups of linking adverbials that had striking differences in terms of how the FY students used them compared to the LY students. Table 3 shows the relative use of the linking adverbials *however* and *yet* and reaffirm findings made in prior research (Ishikawa, 2011; Leedham & Cai, 2013; Lei, 2012; Vincela, 2013) that students rely on a more limited selection of linking adverbials. *However* and *yet* provide an excellent example of this because while the two linking adverbials have nuanced

differences, textbooks and grammar resources often present them as synonymous. The combined totals of this linking adverbial pair appeared remarkably similar for both groups of students, but closer analysis shows the linking adverbial *yet* was significantly underused by the FY students compared to the LY students. This may be due to the FY students' perceiving *yet* exclusively as a coordinating conjunction rather than a multipurpose word or receiving insufficient instruction to make full use of the word as a linking adverbial in addition to the possible assumption of *however* as suitable replacement for *yet*.

Table 3
Use of *However* and *Yet*

	FY paper 1	FY paper 2	FY paper 3	All FY papers	LY students
However	40 / 1.50	42 / 1.81	38 / 1.53	120 / 1.61	28 / 1.18
Yet	3 / 0.11	2 / 0.09	4 / 0.16	9 / 0.12*	13 / 0.55
Total	43 / 1.61	44 / 1.90	42 / 1.69	129 / 1.73	41 / 1.73

Note. (Frequency shown is raw/adjusted per 1,000 words.) Significance figures provided by Rayson's log likelihood calculator (http://ucrel.lancs.ac.uk/llwizard.html): * = $p < 0.001$.

The second linking adverbial pair of note is taken from the list of the most common conversation linking adverbials, *so, then, though,* and *anyway*, as described by Biber et al. (2002). Table 4 shows a breakdown of how two of these linking adverbials, *so* and *then*, were used by both sets of students. Although the use of *so* and *then* decreased throughout the semester for the FY students, they still used these words as a linking transition much more than the LY students, suggesting a lack of awareness of the lexical expectations of academic writing. The reduction of these linking adverbials between the FY students' first and second essays may also be due to the type of essays they were assigned. The first essay could be categorized as a narrative essay as the students were asked to write about their personal experiences. This may have led to the overuse of more conversational language, particularly the word *then*, which was often used to introduce an action that followed the action mentioned in the previous sentence. This reduction may also suggest increased awareness of academic expectations throughout the semester for the FY students, but their continued overuse of *so* shows that this problem required additional inquiry.

Table 4
Use of *So* and *Then*

	FY paper 1	FY paper 2	FY paper 3	All FY papers	LY students
So	20 / 0.75*	14 / 0.60**	14 / 0.57**	48 / 0.64*	3 / 0.13
Then	18 / 0.67**	8 / 0.35	8 / 0.32	34 / 0.46	4 / 0.17

Note. (Frequency shown is raw/adjusted per 1,000 words) Significance figures provided by Rayson's log likelihood calculator (http://ucrel.lancs.ac.uk/llwizard.html): * = $p < 0.001$; ** = $p < 0.01$.

While the results of this study were able to adequately answer the research questions, there were limitations. The corpora used for this study were relatively small in size, as was the list of linking adverbials selected for analysis. Larger corpora and a more comprehensive list of linking adverbials would likely have provided a more accurate assessment of total linking adverbials used by both groups of students as well as a better understanding of differences in terms of specific linking adverbials and substitution of near synonyms. Also, as qualitative assessment was required to judge what was and was not actually a linking adverbial, it is possible that incorrect assessment could have led to incorrect results. Another feature of these essays was that they included references to external sources. The manual assessment of the linking adverbials allowed me to tabulate frequencies based only on the linking adverbials written by the students themselves and not copied into the essays as direct quotations, but it is also possible that incorrect assessment could have led to inflated frequency counts. In spite of these limitations, the findings of this study can provide implications for both teachers and researchers.

Implications

Based on these findings, it seems clear that first-year students should be made more aware of the expectations for academic writing based on the overuse of conversational linking adverbials. As my qualitative analysis of the sentences containing *so* as a linking adverbial found that simply removing the word improved the sentence, students could be told that conversational linking adverbials simply have no place in academic writing, just as students are warned against using other aspects of colloquial English in their papers. It would, however, be beneficial to scaffold the removal of such words by eliciting and/or providing more appropriate substitutes. A focus on the removal of

less academic linking adverbials could also lead to the reduction of the perceived overuse of linking adverbials by less proficient language learners.

Another aspect of linking adverbial use that these results seem to suggest is the need for additional instruction in the nuanced differences of similar linking adverbials, such as *however* and *yet*. Students need more than just textbooks and reference guides listing linking adverbials with meanings and suggestions for correct usage; they also need explicit examples of appropriate and inappropriate use. This could begin with contrived examples that clearly illustrate differences in meaning between similar linking adverbials. For example, *yet*, when used as a linking adverbial, seems to entail a stronger level of contrariness compared to *however,* which can be difficult for language learners to grasp. Creating clear examples in which only one of the two is appropriate could help with their understanding. Once students have demonstrated an understanding of these differences, authentic examples could then be provided to show students how these adverbials are incorporated into academic writing.

Regarding research of linking adverbials, the problems learners face with correct use seem to be more complex than simply over- or underuse of these language features. In terms of calculating use, adjusted frequency per x amount of words may be insufficient as linking adverbials are used to connect larger units of discourse. Calculating adjusted use per sentence can provide a different representation of the data, so it could also be helpful to look at frequency per paragraph or entire piece of writing. Also of note might be relative frequency between paragraphs, as one paragraph may contain multiple linking adverbials while the following paragraph may contain none at all. When assessing over- and underuse, it is also important to consider other reasons for perceived overuse, as was observed in the second essay written by the FY students. To become proficient in the use of language, students must simply use the language. This process can lead to students' "overusing" linking adverbials for certain assignments, but to consider these instances of overuse negative is to disregard necessary steps of the learning process. When carrying out research, it is essential to keep in mind both of the pedagogical goals of the process as well as the product.

Conclusions

There are many future directions to go in the wake of this study. While a thorough qualitative assessment of appropriate or inappropriate use of linking adverbials was not a focus of this study, such an

assessment could provide additional insights into learner acquisition of linking adverbials. A reassessment of the results of this study based solely on correct use of linking adverbials could also provide a different set of findings. It would also be beneficial to use a more comprehensive list of linking adverbials, such as Liu's (2008) list of 110 linking adverbials as opposed to the selection of 24 linking adverbials used in this study. An analysis of 320 research articles by Peacock (2010) found that linking adverbials were much more commonly used in this genre than previously reported by Biber et al. (2002), so a reconsideration of which linking adverbials to assess seems to be called for. One other area of further inquiry also takes into account the types of corpora used in linking adverbial studies. While the essays taken from MICUSP (2009) can be deemed successful based on their A grades, additional differences could be found by comparing either that group or the FY students from this study to native-speaking students of comparable education levels.

One final takeaway from this study is the usefulness of instructors' conducting corpus-based research in their own classrooms. This study could just as easily have been conducted using freely available corpus tools, and it provided findings and implications that will definitely lead to more effective teaching practices in the future. Rather than basing teaching effectiveness on gut feelings or end-of-term grades, corpus-based research can provide empirical evidence of areas that require additional and modified instruction. Having an intricate understanding of the research materials can also give a clearer understanding of why a student might have completed an assignment in the way he or she did. While not a panacea for all issues that arise while teaching, classroom-based research can help illuminate at least some of these issues that may otherwise elude teachers.

Author

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Appendix
Complete Table of Linking Adverbial Frequency

	FY paper 1			FY paper 2			FY paper 3			All FY papers			All LY papers		
	Raw	*TPW 1,000*	*TPS 100*	*Raw*	*TPW 1,000*	*TPS 100*	*Raw*	*TPW 1,000*	*TPS 100*	*Raw*	*209 Adj*	*209 Sen*	*Raw*	*TPW 1,000*	*TPS 100*
anyway*	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00
e.g.	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00
finally	3	0.11	0.20	1	0.04	0.09	2	0.08	0.15	6	0.08	0.15	1	0.04	0.11
first/firstly	2	0.07	0.13	2	0.09	0.17	3	0.12	0.23	7	0.09	0.17	3	0.13	0.33
for example	5	0.19	0.33	23	0.99	1.96	10	0.40	0.76	38	0.51	0.95	12	0.51	1.33
for instance	0	0.00	0.00	5	0.22	0.43	3	0.12	0.23	8	0.11	0.20	2	0.08	0.22
furthermore	2	0.07	0.13	3	0.13	0.26	5	0.20	0.38	10	0.13	0.25	2	0.08	0.22
hence	1	0.04	0.07	2	0.09	0.17	0	0.00	0.00	3	0.04	0.07	1	0.04	0.11
however	40	1.50	2.65	42	1.81	3.58	38	1.53	2.88	120	1.61	3.00	28	1.18	3.09
i.e.	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00
in addition	3	0.11	0.20	7	0.30	0.60	3	0.12	0.23	13	0.17	0.31	5	0.21	0.55
indeed	0	0.00	0.00	3	0.13	0.26	1	0.04	0.08	4	0.05	0.10	0	0.00	0.00
additionally	2	0.07	0.13	4	0.17	0.34	2	0.08	0.15	8	0.11	0.20	1	0.04	0.11
nevertheless	0	0.00	0.00	2	0.09	0.17	0	0.00	0.00	2	0.03	0.05	2	0.08	0.22
nonetheless	2	0.07	0.13	0	0.00	0.00	0	0.00	0.00	2	0.03	0.05	0	0.00	0.00
...other hand	7	0.26	0.46	9	0.39	0.77	5	0.20	0.38	21	0.28	0.52	3	0.13	0.33
rather	0	0.00	0.00	1	0.04	0.09	1	0.04	0.08	2	0.03	0.05	3	0.13	0.33
so*	20	0.75	1.33	14	0.60	1.19	14	0.57	1.06	48	0.64	1.20	3	0.13	0.33
that is	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00
then*	18	0.67	1.19	8	0.35	0.68	8	0.32	0.61	34	0.46	0.85	4	0.17	0.44
therefore	8	0.30	0.53	26	1.12	2.22	12	0.48	0.91	46	0.62	1.15	8	0.34	0.88
though*	2	0.07	0.13	2	0.09	0.17	1	0.04	0.08	5	0.07	0.12	0	0.00	0.00
thus	4	0.15	0.27	13	0.56	1.11	4	0.16	0.30	21	0.28	0.52	8	0.34	0.88
yet	3	0.11	0.20	2	0.09	0.17	4	0.16	0.30	9	0.12	0.22	13	0.55	1.44
Total	**122**	**4.57**	**8.1**	**169**	**7.29**	**14.4**	**116**	**4.68**	**8.8**	**407**	**5.45**	**10.2**	**99**	**4.18**	**10.94**
words		26,701			23,183			24,763			74,647			23,701	
sentences		1,509			1,173			1.321			4,003			905	
wps		17.69			19.76			18.75			18.65			26.19	

Note: List of linking adverbials found in Biber et al. (2002)
Linking adverbials in italics added to aforementioned list for this study
Linking adverbials marked with (*) are commonly used in conversational English