A Corpus- Based Study of Additive and Adversative in Clause Complex: The case of British and Pakistani Research Discourse

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Abstract

The present study aims at investigating the frequency distributions of conjunctive relations such as additive and adversative in native and non-native Pakistani research discourse by applying the frame work of conjunctive relations (Halliday & Hasan, 1976). In order to achieve the objectives of the present study, two corpora native and non-native are developed each comprising of one million words. The analysis of native and non-native research discourse is carried out by utilizing the mixed method approach (QUAN→qual) (see Creswell ,2007).The study reveals that additives are more frequently (9.36%) used in the Pakistani corpus as compared to that of native corpus. On the other hand, adversative conjunctions are more frequently (6.32%) used in the native corpus as compared to that of non-native Pakistani corpus. The findings expose that non-native corpus showed 1.51% lower variety of conjunctive relations as compared to that of native corpus. The study implies that non-native researcher's access to the native research discourse will enable them to widen their knowledge about the correct and multiple use of additive and adversative conjunctive relations in their research discourse.

Keywords: Conjunctive relations, additive, adversative, native and non-native corpus

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Halliday and Hasan (1976) define the term "conjunction" as "indirect cohesive elements that are meaningful in themselves and that predict the existence of other elements in the discourse or text." Malkmjaer and Anderson (1991) define conjunction as an important part of speech that joins other parts of speech. Fraser (1999) describes conjunction as a pragmatic group of linguistic expressions. Aarts (2001) argues that conjunctions fit in the group of closed-class words that comprise a linking function. Dixon (2006) states that conjunctions are logical linkers that are used to connect two or more clauses to form another coordinate clause. According to Baskervill and Sewell (1895), conjunctions are merely a source of linking sentences and do not perform the function of the modifiers like adverbs.

Different types of labels are used by researchers to refer to the concept of conjunction, such as Quirk et al. (1985), who used the term "conjuncts" instead of "conjunctions." On the other hand, Huddleston and Pullum (2002) used the label of "connective adverbs," while Granger and Tyson, (1996) used the term "logical connectors" for conjunction, and Marianne and Diane (1999) used the term "discourse markers." Fraser (1999) and Parrott (2010) used the label of logical connectives for conjunction.

Halliday and Hasan (1976) divide conjunctions into four types, such as additive, adversative, temporal, and causal. These types are also called conjunctive relations by Halliday and Hasan (1976), as these types of conjunctions describe different types of relations of addition, negation, time sequence, purpose, and reason in sentences or clauses. Halliday and Hasan (1976) argue that the use of conjunctions is considered to be meaningful in the text because conjunctions not only connect a word or sentence with other ones but also predict the presence of other elements in the context. McClure and Steffensen (1980) point out that conjunction is a clue that helps in grabbing attention to and showing explicit logical relationships between clauses. Leung (2005) claims that the use of conjunctions enables the reader to better understand the discourse. It also affects text perception. Moreover, Siddiqui (2014) describes that the use of conjunctions is an essential part of sentences as it maintains the successful flow of verbal and written communication in any language. The use of conjunctions has become an attention-grabbing area of research due to its significant position in discourse (Biber, 2000; Conrad, 2000; Crewe, 1990; Geoffrey Leech & Svartvik, 2002). It has been studied in multiple branches of applied linguistics and different languages of the world, i.e., Hebrew, Chinese, French, German, Danish, English, Finnish, etc. Logical connectors have been studied in different genres such as health (Heritage & Sorjonen, 1994), classroom interaction (Chaudron & Richards, 1985), newspaper (Cotter, 1996), political interviews (Wilson, 1993), tutorial sessions (Moser & Moore, 1995) and talk shows (Cotter, 1996). Chen (2014) states that it is observed at a large scale by many scholars such as Crewe (1990), Altenberg and Tapper (1998), and Sanders and Noordman (2000) that conjunctions are considered to be a problematic concept by many second language learners due to several major reasons such as transfer of L1, wrong input methods, and inter-language effects (Biber et al., 2002). Another drawback of second language learners is that they do not know the proper place of conjunctives in a sentence and a clause. Moreover, the use of multiple types of conjunctions depends on the different types of speech events and registers.

The theory of hypercorrection is presented by Labov (1996). According to Labov, overapplication of a linguistic rule by a speaker in an unsuitable linguistic context results in

linguistic variations. He investigated the phonological variations in the pronunciation of "/r/" in the upper-middle class and lower-middle class of New York City. The study revealed that the lower-middle class speakers showed a tendency to overproduce the /r/ sound while imitating the pronunciation of the upper-middle class. Labov (1996) proved that hypercorrection was largely seen in the less prestigious language varieties as compared to the highly prestigious varieties of a language. In the case of Pakistani English, the Pakistani researchers tended to hypercorrect certain conjunctives in their research discourse, such as additives.

Research Objectives

1. To identify the frequency distribution of conjunctive relations in British and Pakistani research discourse

2. To investigate the differences in the use of conjunctive relations in British and Pakistani research discourse

3. To investigate the reasons for variations in the use of conjunctive relations in British and Pakistani research questions

Research Questions

1. What is the frequency distribution of conjunctive relations across British and Pakistani research discourse?

2. How does the use of conjunctive relations differ in British and Pakistani research discourse?

3. What are the reasons for variations in the use of conjunctive relations in British and Pakistani research discourse?

Significance of the Research

The present study is significant as it describes different types of logical connectors used in native and Pakistani research discourse. It highlights the contrastive use of connectives in Pakistani English and strengthens the view that Pakistani English has established a unique and variant status in the World of Englishes. The study propagates that the variations in the use of connectors in Pakistani English are not mistakes but are nativised part of the variety. It is helpful for the students who intend to study the different types of conjunctive relations i.e. additive, adversative, temporal and clausal in clause complex, and will also serve as guidance for those researchers who want to investigate the specific attitude and aptitude of the native and non-native researchers in their usage of conjunctive relations in clause complex. The study will be helpful for the ESL teachers to understand the over and underuse of conjunctive relations by the ESL (Pakistani) researchers and thus to apply appropriate teaching techniques that will be helpful to produce native-like command over the use of conjunctive relations.

Delimitations of the study

The present study is limited in its size and genre, as it comprises only research discourse with one million words. It is confined to convenience sampling technique, as Pakistani research theses are selected only by NUML University from an online source and British theses are selected from an online source called Ethos.

Literature Review

Many studies have been made on the use of conjunctions by researchers in the last decades. Some of these studies show direct connections between the use of conjunctions and the quality of the written text. These studies include the works of (Intaraprawat & Steffensen, 1995), (Field & Oi, 1992), (Jin, 2001), (Neuner, 1987); while others do not create a connection between the use of conjunction and writing styles. These studies merely focused on identifying the frequently used, misused, and underused connectors in native and non-native compositions (Johnson, 1992; Karasi, 1994).

da Silva et al. (2018) analyzed the logical connectors used by Brazilian students and compared their writings with the high-achievers of native speakers in British universities. The corpus analysis showed that the Brazilian students overused the connectors as a whole and specifically connectors that expressed additional meanings.

Liu et al. (2018) compared the causal connector usage in the writings of graduate Chinese English majors and non-English majors. The study used Quirk et al. (1985) taxonomy of causal connectives that includes prepositional phrases, adverb phrases, and conjunctional phrases. The findings showed that English majors were more proficient in using causal conjunctions as compared to English non-majors. Furthermore, it was also found that English non-majors use of causal connectors was confined to a small repertoire, and it was also less frequent and more complicated. It was suggested by the study that a more careful selection of causal conjunctions should be adopted by Chinese learners according to different linguistic as well as social contexts. Secondly, it was emphasized that teachers should use divergent techniques and methods to teach different learners belonging to different social contexts.

Hao (2019) analysed the use of connectors in spoken English by EFL students by using a corpus-based technique. The study adopted corpus-based computer-aided error analysis and contrastive analysis to analyse frequencies and tokens in the native MICASE corpus and non-native TESOL corpus. The results of the study revealed that TESOL students showed a tendency to overuse certain logical connectors, i.e., additive coordinating conjunctions such as but, so, and as compared to native speakers. Moreover, the underuse of when, though, if, so, and that showed less frequent use of adverbial clauses in their spoken discourse.

In another corpus-based study on conjunctive cohesion in Pakistani research articles, Qasim (2020) used Haliday and Hassan's (1976) model of conjunctive analysis. The results showed that additive conjunctions, a subcategory of the extension were overused by the Pakistani researchers. It was also revealed that ESL writers had a high frequency of conjunctive cohesion.

Hussain (2020) analysed lexical bundles in Pakistani textbooks by using a corpus-based approach. The study used AntConc 3.5.2 as a tool for the analysis of frequencies and functional taxonomies of four-word prepositional phrase lexical bundles. The results showed twenty frequent lexical bundles in the Pakistani textbooks. The study recommended a few pedagogical implications for teaching the appropriate use of lexical bundles to enrich the academic writing of Pakistani writers.

The previous studies have largely focused on classroom-based tests, essays, and research articles in the written academic genre for the analysis of logical connectors. The present study fills the gap and investigates the frequency distributions of a comparatively large number of conjunctive

relations such as additives and adversatives along with subcategories of each type in the Pakistani academic research discourse (Ph.D. dissertations) and compares them with that of British research discourse to analyze differences in the use of conjunctive relations.

Research Methodology

The present study utilized the sequential explanatory design (QUANàqual) of the mixed method approach presented by Creswell and Clark (2017) to produce qualitative analysis of the quantitative data collected by the corpus tool AntConc. First, quantitative data in the form of frequency is collected and then analysed qualitatively in the light of the research hypothesis. The study adopts the convenience sampling technique to collect native and non-native dissertations because the samples undertaken are readily available and accessible. The Ph.D. dissertations by the native researchers have been downloaded from the internet website WWW.ethos.bl.uk, while the dissertations by the non-native researchers have been downloaded from the internet repository of the Pakistan Research Repository of the National University of Modern Languages Pakistan.

Method of Data Collection

A) Study Samples and Study Size

Study samples are the miniature representatives of a large population (Fink, 2003). The study adopted the convenience sampling technique to collect native and non-native dissertations. According to Bryman (2008), the convenience sampling technique includes the selection of study samples that are easily accessible by the research. The dissertations of linguistics and literature by the native researchers are downloaded from the internet website WWW.ethos.bl.uk, while the theses of linguistics and literature by the non-native researchers are downloaded from the internet source of the Pakistan research repository of NUML University Pakistan. The study size is determined by the total words in native and non-native dissertations. The native and non-native researcher's dissertations are used to compile two different corpora, termed native and non-native corpora. The total number of words (tokens) in the native corpus is 1,084,208, while in the non-native corpus is 1,064,446 (also shown in Table 3.1). A normalized frequency (frequency per million) of overall and type-wise conjunctives in both native and non-native corpora is derived to ensure representativeness and balance in both corpora. Normalized frequency is measured by applying the following formula:

Normalized frequency = Frequency of obtained words / total words in a corpus * 1,000,000

B) Compilation of Native and Non-Native Corpus

After downloading the native and non-native dissertations, the data is converted into plain text (.txt format) by using a PDF converter (software that converts PDF files into plain text) to bring it into a machine-readable format. Afterward, the data in plain text format is saved as different files. The study has compiled two different corpora, named native and non-native corpora. The native corpus is comprised of dissertations on linguistics and literature by British scholars. The non-native corpus consists of dissertations by Pakistani non-native researchers of the National University of Modern Languages, Islamabad.

Table 3.1

Description of Data Collection in Native and Non-native Corpus

Type of corpus	Total number of dissertations in linguistics and literature	Total words (tokens)
Native corpus	12	1084208
Non-native corpus	12	106446

Methods of Data Analysis

A) Use of Corpus Tool (AntConc)

The present study is a corpus-based comparative investigation of the use of conjunctive relations, i.e., additive, adversative, temporal, and causal, in the native and non-native research discourse. AntConc is used as a tool in the study to measure the frequent use of conjunctives in both native and non-native corpora quantitatively. Computational linguistics has given birth to many new and innovative techniques and methodologies that have made the work easier. AntConc software is created by Laurance Anthony for conducting multiple types of corpus linguistics research. It comprises seven different tools such as the concordance tool, concordance plot tool, file view tool, N-grams, wordlist, collocates, and keyword lists. This software presents results in the form of a range, frequency, and rank after scanning the required words. It has been used by many researchers such as Muddhi (2014), Gunes (2017), and Uzun, K (2017) for conducting corpus-based comparative studies of the frequent use of conjunctions in native and non-native written discourse.

The present study used the concordance tool of Antconc version 3.5.8 to measure the frequency of conjunctive relations in both native and non-native corpora. This tool presents results in the form of (KWIC) keywords in context. The frequency of conjunctive relations is measured by entering native and non-native files in the Antconc separately by clicking on the open directory option in the file menu. After that, different conjunctives are entered in the search bar one by one to find out the concordance hits (total frequency of a search item in the corpus). The contextual use of the conjunctives is also examined by clicking on the highlighted search item to discover the category of the conjunctive. For example, the conjunctive 'then' falls into two types of conjunctives, i.e., sequential and temporal. The concordance hits of "then" provide only an overall frequency of the conjunctives therefore, contextual use of "then" is analyzed by observing it in KWIC.

B) Use of Frequency Tables and Bar Graphs

The mixed method approach (both quantitative and qualitative methods) presented by Creswell (2007) is used for the analysis of the frequent use of conjunctives in the native and non-native corpora. After measuring the frequency of conjunctive relations in both corpora through a concordance program AntConc (version 3.5.8), tables showing the comparative frequency of conjunctive relations in both native and non-native corpora are presented to describe the overall and category-wise comparative differences found in the use of conjunctive relations quantitatively.

Afterward, bar graphs are produced to explain the frequent and infrequent use of conjunctive relations in both native and non-native corpora, respectively. The corpus-based analysis of concordance hits through a quantitative approach revealed the extent to which variations in the usage of conjunctions exist, while graphical representations explained the reasons and implications of the conjunctive variations in the native and non-native corpora qualitatively. AntConc version 3.5.8 is used as a tool of the study to measure the frequent use of conjunctives in both native and non-native corpora quantitatively. Tabular and graphical representations are produced to show the comparative frequency of conjunctive relations in both native and non-native corpora.

Theoretical Framework

According to Halliday and Hasan (1976), conjunctions are considered to be different as compared to other cohesive devices. The main reason for the difference lies in the function of conjunctions. Unlike other cohesive devices, i.e., substitution, ellipsis, and references, the use of conjunction also create meanings in the text while performing its referential purpose. According to Halliday and Hasan (1976), many other complex categories of conjunctions exist, but they preferred to use only four categories of conjunctions, i.e., additive, adversative, temporal, and causal, concerning their semantic functions in the text. Halliday and Hasan (1976)) argued that the reason behind this selection was to elaborate the cohesive function of conjunctions in a simple way rather than making it more intricate. These categories of conjunction are known as conjunctive relations, as these types are in fact sources for creating different types of positive, negative, and sequential relations in the text. All these types of conjunctions can be used externally and internally in the text. External conjunctions show the ideational function of language. These are also known as situation-time conjunctives. On the other hand, internal conjunctions show the interpersonal function of language and also are known as thesis time conjunctions. Halliday and Hasan's (1976) categories of conjunctive relations are selected for the present study which are explained as follows.

a) Additives

According to Halliday and Hasan (1976), additives are those conjunctions that are used to add something new in the clause such as and, or, nor, moreover, in addition. Additives are further categorized into four sub-categories as additive simple which includes conjunctions like and, or, and also, negatives i.e. nor, neither, else, alternatives include or, else while complex emphatic consists of moreover, in addition, and besides this, etc., apposition include expository and exemplificatory while comparative additive relation consists of similar and dissimilar expressions such as similarly, for instance, likewise, on the other hand, and by the way.

b) Adversative

The adversative conjunctions show the opposite of what is expected in a given situation or context. Adversative conjunctions are further divided into four categories, such as adversative proper, contrastive, correction, and dismissal adversative. Simple adversatives include conjunctions such as yet, only, and though, emphatic adversatives like nevertheless, all the same. Contrastive adversative relation includes the conjunctions such as however, and, but, correlative forms are I mean, at least, instead. On the other hand, dismissive adversative relations include both open-ended and closed forms of conjunctives such as in either case, at any cost, anyhow.

Results and Discussions

Findings from the Native and the Non-Native Corpora. The present study has set certain research objectives which are required to be achieved by using the corpus-based approach. These research objectives include the identification of the overall distribution and differences of conjunctive relations such as additives and adversatives in native and non-native research discourse, respectively.

Furthermore, two research questions are set by the researcher of the present study to achieve these certain research objectives. The answers to these research questions will be explored by applying the mixed method approach proposed by W, Creswell (2007) to find the frequency distributions of conjunctive relations in both native and non-native corpora. Finally, the objectives will be achieved by answering these research questions. These three questions, along with their answers will be discussed one by one as follows:

A) Overall Frequency Distribution of Additive and adversative Conjunctive Relations

The overall frequency of conjunctives in both native and non-native corpora is measured by calculating the total words in both corpora and the overall frequency of concordance hits of conjunctives. The total number of words (tokens) in the native corpus is 1,084,208, while in the non-native corpus is 1,064,446. On the other hand, the corpus-based analysis finds that the total number of conjunctives in the native corpus is 39,433 while in the non-native corpus total frequency of conjunctives is 50,881. It is also revealed by the corpus-based analysis that the overall frequency of conjunctives in the native corpus is 3.63%, while in the non-native corpus is 4.78%. The result of the study shows noticeable differences in the use of frequent conjunctives in both native and non-native corpora. It is found that the frequency of conjunctive usage is 1.15% higher in the non-native corpus as compared to the frequency distribution of conjunctives in the native corpus. On the other hand, lexical density in each native and non-native corpus is also measured by the type-token ratio. Lexical density refers to the concept of having a greater number of different types of lexical words. Token refers to the total number of words in a corpus while type refers to different types or a variety of words in a corpus. The type-token ratio is measured by dividing total word types by total tokens in both native and non-native corpora. The total number of tokens in the native corpus is 1084208 while in the non-native corpus is 1064446. On the other hand, the total number of word types in the native corpus is 45480, and in the non-native corpus, it is 28593. So, the results show that the type-token ratio in the native corpus is 4.19% while the non-native corpus is 2.68% which is comparatively lower than the type-token ratio in the native corpus. The higher rate of type-token ratio in the native corpus demonstrates that the native corpus is denser as compared to the non-native corpus. The findings of the study proved that the non-native researchers used less variety of items as compared to the native researchers or scholars. In the same way, overall comparative variation in the use of conjunctives i.e. additives and adversatives in both native and non-native corpora are also measured by calculating the type-token ratio of these conjunctive relations. To find the TTR of conjunctives in both native and non-native corpora, the total number of different conjunctives is divided by the total frequency of conjunctive relations in both native and non-native corpora. The total number of conjunctive tokens in the native corpus is 39433, while in the non-native corpus is 50881, as shown in Table 4.2. On the other hand, the total number of different conjunctives in native and non-native corpora is 98. The results of the study showed that the native corpus comprised 0.248% conjunctive variation while the non-native corpus showed a comparatively low type-token ratio of 0.192%. The type-token ratio of conjunctives in

both native and non-native corpora indicates that the native corpus has a higher rate of TTR which means that the native scholars used a higher variety of conjunctives in their academic compositions with less repetition. While non-native corpus showed a low rate of TTR of conjunctives which indicates the non-native scholars' tendency of using less variety of conjunctives in their academic writings with a greater number of repetitions of the same conjunctions. The results of the study are also supported by the corpus-based study of Martínez (2015) who has studied the use of logical connectors in the secondary level learners' compositions and exposed through quantitative analysis that native speakers showed a higher variety of conjunctions in their academic writings as compared to the non-native learners who tend to overuse the same logical connectors rather than the usage of different variety of conjunctions in their academic writings. Moreover, research by Heino (2010) has also supported the findings of the present study by declaring that native writers showed quality writing due to having a wider knowledge of a variety of logical connectors.

B) Differences in the Use of Conjunctive Relations

The study has revealed that the most frequent type of conjunctive relations is additive in both native and non-native corpora as the frequency of additives in the native corpus is 51.31% while in the non-native corpus is 60.67%. Additives are then followed by adversatives in both native and non-native corpora. The frequency of adversatives is 18.49 % in the native corpus while 12.17% in the non-native corpus. The findings of the present study show that the overall frequency of additives is 9.36% higher in the non-native corpus Das compared to the overall frequency of additives in the native corpus. On the other hand, it is also evident through table 4.2 that adversatives are 6.32% more frequently used by native scholars than non-native researchers.

Table 4.2

Frequency and Percentage of types of Conjunctive Relations in the Native and Non-native corpus

Serial No	Types of conjunctive relation	Frequency in native corpus	%	Frequency in non-native corpus	%
1	Additives	20234	51.31	30870	60.67
2	Adversatives	7291	18.49	6190	12.16

The findings are consistent with the results produced by many other researchers' studies (Muddhi & Hussein, 2014; Uzun, 2017; Yoon, 2006). da Silva et al. (2018) showed the same results in their study who pointed out that Brazilian non-native learners showed a tendency to overuse the conjunctive in their academic compositions representing additional meanings. Another study has proved that Iranian EFL learners' attitude toward using more additives in their writings was more prominent as compared to that of non-Iranian students (Jamalzadeh, 2017). Through a quantitative approach, Uzun (2017) has analyzed the use of linkers in the argumentative essays of Turkish students and compared it with that of native writers. The corpus of Turkish writings was comprised of 160 essays by 40 students. By applying Halliday and Hasan's (1976) model of conjunctions the researcher revealed that additives were more used by the ELT learners than the temporal conjunctions.

Table 4.3

Frequency and Percentage of Additives in Native and Non-native Corpora

Serial no	Type of conjunctive relations	Words	Frequency in native corpus	%	Frequency in non-native corpus	%
1		And	13791	68.16	23830	77.19
2		and also	109	0.54	119	0.39
3	Additive Simple	Nor	143	0.71	76	0.25
4		and not	79	0.39	129	0.42
5		Or	3867	19.11	4560	14.77
6		or else	2	0.01	5	0.02
		Total	**17991**	**88.91**	**28719**	**93.03**
7		Furthermore	107	0.53	87	0.28
8		in addition,	194	0.96	133	0.43
9	Complex zasasEmphatic	Besides	21	0.10	32	0.10
10		alternatively,	16	0.08	2	0.01
11		Incidentally	9	0.04	1	0.00
12		by the way	4	0.02	5	0.02
		Total	**351**	**1.73**	**260**	**0.84**
13		that is	580	2.87	462	1.50
14		i mean	77	0.38	17	0.06
15		in other words	129	0.64	130	0.42
16	**Apposition**	for instance	214	1.06	142	0.46
17		Thus	417	2.06	628	2.03
		Total	**1417**	**7.00**	**1379**	**4.47**
18		Likewise	21	0.10	42	0.14
19		Similarly	132	0.65	190	0.62
20		in the same way	20	0.10	30	0.10
21	Comparison	on the other hand	227	1.12	242	0.78
22		by contrast	80	0.40	8	0.03
		Total	**480**	**2.37**	**512**	**1.66**

The above-mentioned table 4.3 describes the frequencies and percentages of different types of additives i.e. additive simple, complex emphatic, apposition, and comparison in both native and non-native corpora. It is evident through the findings that additive simple such as are, and, and also and or are most frequently used additives in both native (88.91%) and non-native (93.03%) corpora also shown through figure 4.3 as compared to other categories of additive such as complex emphatic, apposition and comparison. While 'and' is found to be the most frequently used conjunctive type of simple additive in both native and non-native corpora with the frequency of 77.19% in the non-native and 68.16% in the native corpus as compared to other simple additives such as or, and also, and not and or else. On the other hand, additive simple 'or else' is found to be the least frequently used in the native corpus (2%) and non-native corpus (5%). It is also obvious through the results that the overall frequency of simple additives is higher in the non-native corpus as compared to that of the native corpus.

The findings reveal that complex emphatics are the least commonly used type of additives by both native and non-native researchers in their academic dissertations as native corpus shows

1.73% frequency while non-native corpus shows 0.84% frequency of complex emphatics i.e. furthermore, in addition, besides, incidentally, alternatively and by the way which is the lowest frequency of additives as compared to other categories i.e. additive simple, apposition, and comparison. The complex emphatic 'furthermore' is found to be the most frequently used conjunctive with a frequency of 0.53% in the native corpus while the complex emphatic additive 'in addition is found to be the most frequently (0.43%) used in the non-native corpus. On the other hand, the complex emphatic additive 'by the way with a frequency of 4% is found to be the least frequently used in the native corpus and the complex emphatic 'incidentally' is found to be having lowest frequency of 1% in the non-native corpus.

Figure 4.2 shows that the frequency of simple additives in the non-native corpus is 4.12% higher than the total ratio of simple additives in the native corpus. On the other hand, complex emphatic additives are 1.73% frequently used in the native corpus while the ratio of emphatics is 0.84%in the non-native corpus. In the native corpus, the ratio of emphatic conjunction is 0.89% higher than that of the non-native corpus which reveals the fact that the native researchers tend to use more complex emphatic additives than the non-native scholars in their academic compositions. In the native corpus the complex additive 'by the way' is least commonly used while the emphatic 'incidentally' is the least used additive in the non-native corpus. Apposition is a 7% frequently used type of additive in the native corpus and the frequency of apposition relation is 4.47% in the non-native corpus. The ratio of use of appositions is higher in the native corpus which is 2.53% more frequent than that of the non-native corpus. The use of additive 'is' the most frequently used apposition in the native corpus with the frequency of 2.87% while the additive 'thus' is a highly used apposition in the non-native corpus with the frequency of 2.03%. The findings of table 4.3 also show that the comparison category of additive in the native corpus is the most frequently used type of additive with a frequency of 2.37% as compared to the use of the comparison type of additive in the non-native corpus with a frequency of 1.66%. The type of additive conjunctive comparison, 'on the other hand is highly used in both the native (1.12%) and non-native corpus (0.78%) as compared to other additives showing comparison such as 'likewise, similarly, in the same way, and by contrast'.

The results of the study are in line with the study conducted by Narita et al. (2004) who analyzed that additive simple was the most frequently used by the Japanese non-native EFL learners than the native learners. Another supportive study by Chen (2006) also researched through a corpus-based study on logical connectors and found that simple additives were overused by the Taiwanese non-native learners as compared to the native learners.

Figure 4.2 shows the comparative frequency of different types of additives such as additive simple, complex emphatic, apposition, and comparison in native and non-native corpora. The findings of the graph show that additive simple (i.e., and, and also) is the most frequently used type of the additives in both native and non-native corpora yet additive simple is more frequently used in the non-native corpus as the frequency of simple additives in the native corpus is 88.91% and in the non-native corpus is 93.03%. The other three types of additives i.e., complex emphatic with the frequency of 1.73%, apposition with the frequency of 7%, and comparison with the frequency of 2.37% except additive simple are more frequently used in the native corpus when compared to those of in the non-native corpus. It is evident through the graph that complex emphatic conjunctives such as by the way, incidentally, alternatively, besides, in addition, and are least frequently (0.84%) used by the non-native and native researchers (1.73%) as compared to other types of additives i.e., additive simple, apposition, and comparison.

Figure 4.2

A Bar Graph Showing Comparative Frequencies of Different Types of Additives in the Native and the Non-Native Corpora
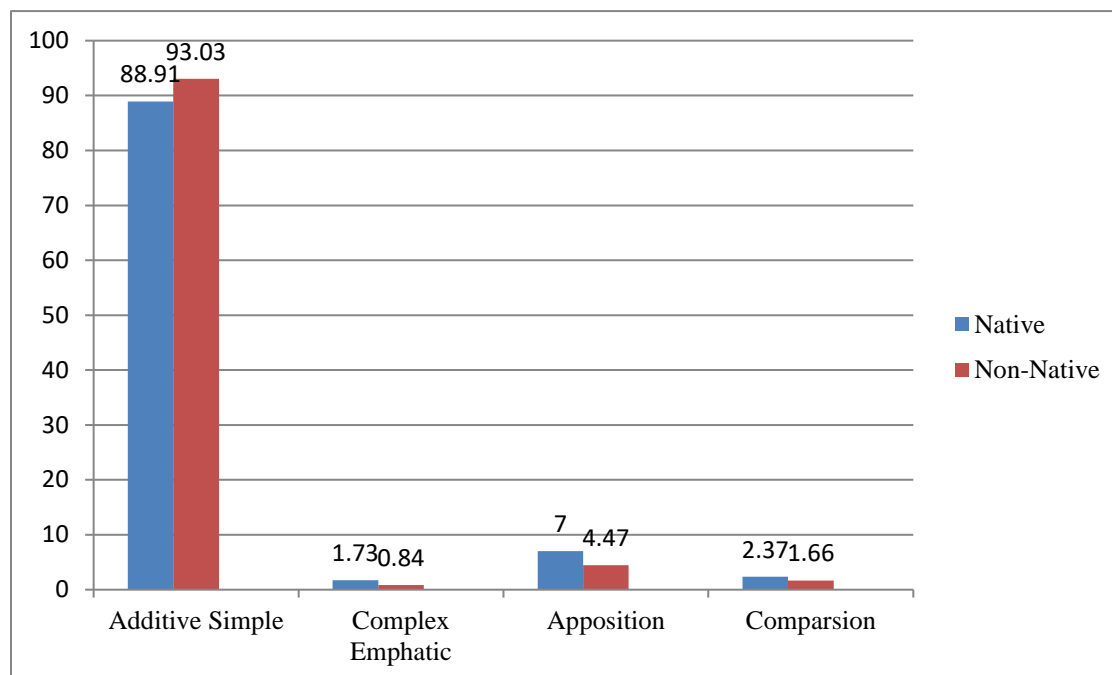
The findings of table 4.4 show that the first type of adversatives 'adversative proper' is found to be the most frequently used type of adversative in both native and non-native corpora followed by the correction, contrastive, and dismissal as shown in figure 4.4. However, it is also revealed by the analysis that the overall frequency of adversative proper is higher in the non-native corpus than in the native corpus. The frequency of adversative proper in the native corpus is 77.92% while in the non-native corpus it is 83.34% which shows that the overall frequency of adversative proper is 5.42% higher in the non-native corpus than that of the native corpus. It is found by the frequency analysis of adversative proper that the conjunctive 'but' is most frequently used in the native corpus as compared to other adversative proper with the frequency of 33.42% i.e., yet, though, only, however, and despite this. On the other hand, the conjunctive adversative proper 'but' is also highly used in the non-native corpus with a frequency of 37.90% which is 4.48% higher in the non-native corpus as compared to the native corpus. The findings also show that the adversative proper 'despite this' is least frequently used in both native and non-native corpora whereas its overall frequency is 0.09% higher in the native corpus as compared to the non-native corpus. The results are consistent with the findings of Liu and Braine's (2005) study who found in the corpus-based study that the adversative 'but' was most frequently used in the non-native corpus than in the native corpus. The findings are in contrast with the results showed by Bell's (2010) study who claimed that the use of adversative 'yet' was most frequently used while the use of adversative proper 'nevertheless' was found to be the least frequent by the non-native learners.

Table 4.4

Frequency and Percentage of Adversatives in Native and Non-native Corpora

Serial no	Type of conjunctive relation	Words	Frequency in native corpus	%	Frequency in non-native corpus	%
1		yet	218	2.99	153	2.47
2		though	395	5.42	294	4.75
3		only	1247	17.10	1560	25.20
4	Adversative Proper	but	2437	33.42	2346	37.90
5		How ever	1249	17.13	771	12.46
6		nevertheless	124	1.70	31	0.50
7		despite this	11	0.15	4	0.06
		Total	**5681**	**77.92**	**5159**	**83.34**
8		in fact	2	0.03	5	0.08
9		actually	145	1.99	127	2.05
10	Contrastive	as a matter of fact	2	0.03	31	0.50
11		at the same time	107	1.47	99	1.60
		total	**256**	**3.51**	**262**	**4.23**
12		instead	181	2.48	228	3.68
13		rather	807	11.07	393	6.35
14	Correction	on the contrary	11	0.15	12	0.19
15		at least	230	3.15	110	1.78
		total	**1229**	**16.86**	**743**	**12.00**
16		in any case	29	0.40	1	0.02
17		in either case	5	0.07	0	0.00
18		whichever way it is	0	0.00	0	0.00
19		in any case	32	0.44	1	0.02
20	Dismissal	anyhow	2	0.03	1	0.02
21		at any rate	6	0.08	0	0.00
22		however it is	51	0.70	23	0.37
		Total	**125**	**1.71**	**26**	**0.42**

The adversative category of correction is found to be more frequently used by native speakers as compared to that by non-native speakers. The analysis shows that the correction category is used 4.86% more frequently in the native corpus than in the non-native corpus. The conjunctive 'rather' is found to be the most frequently used adversative in both native (11.07%) and non-native corpora (6.35%) followed by other adversatives showing the relation of correction i.e. instead, at least and on the contrary though the overall frequency of adversative 'rather' is higher in the native corpus as compared to that of the non-native corpus that is 4.72%. While the adversative 'on the contrary' is found to be least commonly used by both native and non-native researchers though the overall percentage of the adversative 'on the contrary' is 1% higher in the non-native corpus than the use of adversative 'on the contrary' in the native corpus.

The findings in table 4.4 reveal that the frequency of contrastive adversative is 3.51% in the native corpus while 4.23% in the non-native corpus. The overall frequency of contrastive adversative is 0.72% higher in the non-native corpus as compared to that of the native corpus. Moreover, the contrastive 'actually' is found to be the most frequently used adversative in both

native (1.99%) and non-native corpora (2.05%), and the contrastive 'in fact' is the least used adversative in both native (2%) and non-native (5%) corpora. The fourth type of adversative dismissal is found to be the least frequently used in both native and non-native corpora. The overall frequency of dismissal adversatives is 1.71% in the native corpus while o.42% in the non-native corpus that shows that non-native researchers tend to use a 1.29% low frequency of dismissal such in either case, in any case, in either case, anyhow, at any rate, and however it is as compared to that of the native researchers. The dismissal adversative 'however it is' is found to be the most frequently used in both corpora with the frequency of 0.70% in the native corpus while 0.37% in the non-native corpus followed by other dismissals i.e. in any case, at any rate, in either case, and anyhow.

The results of the adversative usage by native and non-native researchers are in accordance with the study by Shirazi et al. (2017) who studied the use of adversatives such as adversative proper, contrastive, correction, and dismissal in the research articles of native and Persian non-native scholars. The findings exposed that the proper adversative and correction were used more frequently as compared to the dismissal and contrastive adversatives.

Figure 4.3

A Bar Graph Showing Comparative Frequencies of Different Types of Adversatives in the Native and the Non-native Corpora
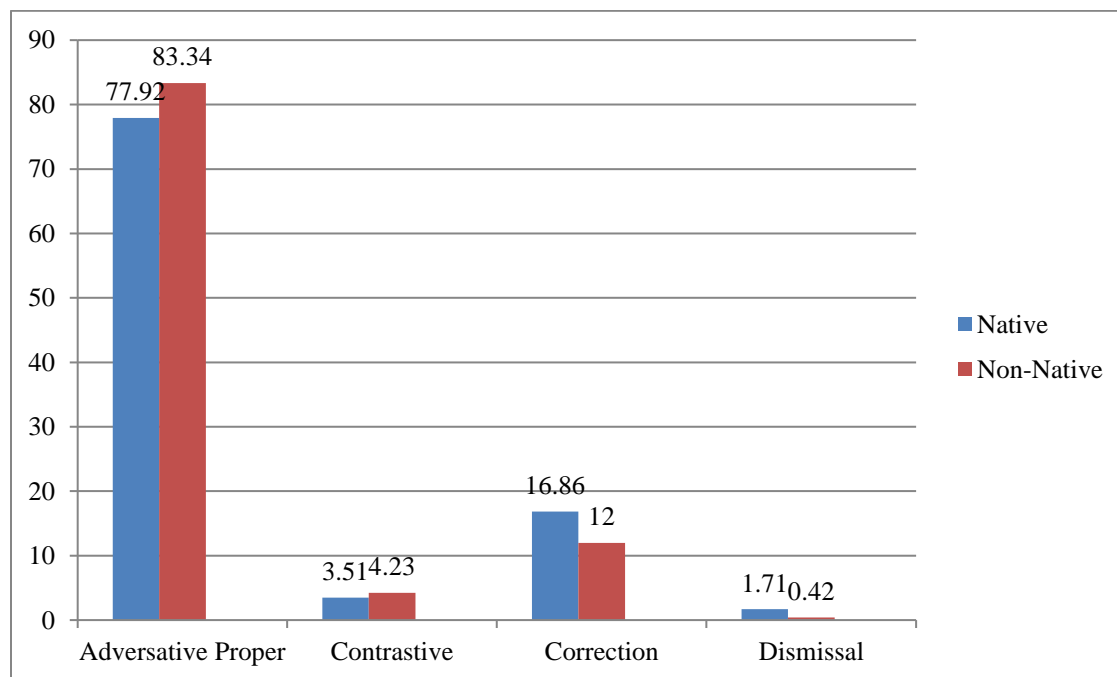
The frequency analysis of different types of adversatives reveals that adversative proper (yet, though, only, but and despite this) is highly used while dismissal (in any case, in either case, whichever way it is, in any case, at any rate, and however it is) is a least used category of adversative in both native and non-native corpora. On the other hand, results show that adversative proper is more frequently used in the non-native corpus with a frequency of 83.34% as compared to that of the native corpus which shows 77.92% frequent use of adversative proper.

Contrastive (in fact and as a matter of fact) are also found more excessively (4.23%) used in the non-native corpus when compared to that of the native corpus (3.51%). Correction adversatives such as instead, rather, and at least are found to be excessively (16.86%) used in the native corpus as compared to that of the non-native corpus (12%). On the other hand, dismissal adversatives are also 1.29% more frequently used in the native corpus than that in the non-native corpus.

C) Reasons of Frequency Variations in the Use of Conjunctive Relations

The variation in the use of conjunctives will be measured in terms of overuse and underuse of conjunctive relations in both native and non-native corpora. Overused conjunctives will show the excessive use of conjunctives in the non-native corpus as compared to the use of conjunctives present in the native corpus while underused conjunctives in the non-native corpus will demonstrate the less frequently used conjunctives in the non-native corpus against the native corpus. The study found that additives are 9.36% soverused in the non-native corpus as compared to the native corpus. The overuse of additives in Pakistani research discourse is mainly due to the impact of hypercorrection as also supported by Labov (1996). It depicts that Pakistani researchers tend to overuse additives even in the linguistic context where these are not required in their imitation of British English. Labov (1996) supports the idea of hypercorrection in the lower variety and Pakistani English is considered a lower variety of English as compared to British English. Adversative conjunctives are found to be 6.33% underused in the non-native corpus. The results of the study revealed that the major causes of overuse of additives and underuse of adversative conjunctives in English are the impact of ESL (English as a second language) learner's first language over their use of second language and insufficient knowledge of a wide range of conjunctive relations by the ESL scholars.

These reasons for variations in the use of conjunctives are also supported by many studies which have attempted to find out the reasons behind the overuse and underuse of conjunctives in the non-native written discourse. Many researchers argued that overuse and misuse of connectors by EFL learners depict their poor writing skills and results in the form of an incoherent piece of writing (Crewe, 1990; Hinkel, 2001; Kuo, 2002; Mauranen, 1993; Mohammed, 2014; Muddhi & Hussein, 2014). They further state that the major reason for differences in the use of logical connectors in non-native writings is the impact of their first language. Crewe (1990) and Kuo (2002)argued that the wrong depiction and explanation of logical connectors in the text books is a major reason for misleading information of conjunctions. Hinkel (2001) claimed that the excessive use of additive 'and' can be considered as an impact on the first language of ESL learners. Mohammed (2014) also argued that the major cause for the differences in the use of conjunctions in the non-native written discourse is the interference of the first language in the second language of ESL learners. Granger and Tyson (1996) pointed out that the inadequate knowledge of grammar especially the use of logical connectors caused the differences in the use of conjunctive relations by the non-native learners.

Conclusion

The purpose of the study was to differentiate the frequency distribution in the use of conjunctives such as additive and adversative in Pakistani and British corpora. It was exposed by the study that additives were 9.36% more frequently used in the non-native corpus while adversatives (6.32%) were underused by the non-native researchers as compared to the native researchers. The study highlighted the reasons for the divergent use of conjunctive relations such as insufficient knowledge of syntactic and semantic use of conjunctive relations, exposure to a limited repertoire of conjunctive variety, and limited access to authentic texts. The results of the study are supported by many other such as Siddiqui, F. (2014) and Qasim, H. (2020) who propagates the notion of overuse of certain conjunctive relations such as additives by non-native speakers. The results of the study supports Labov (1996) theory of hypercorrection which proliferates that unnecessary frequent use of linguistic forms in unsuitable context results in hypercorrection. Moreover, hypercorrection is found in less prestigious languages. The results of the present study proved that hypercorrection of additives was found in English research discourse produced by Pakistani non-native researchers.

The results of the present study are helpful for ESL researchers who are interested in observing the divergent uses of conjunctive relations by non-native writers and scholars. The study will be beneficial for the ESL teachers to understand the overuse and underuse of conjunctions by non-native speakers and consequently adopt the suitable teaching techniques and methodologies for appropriate use of conjunctive relations by the non-native.

Delimitations of the Study

The present study is limited in its scope. The size of the study is limited in terms of its samples, genre, domain, methods of data collection, and analysis schemes. The present study is limited in its data size as it utilizes native and non-native corpora comprising only one million words in each. Secondly, it is limited in its selection of genre as it only utilizes written forms of academic discourse i.e., academic dissertations rather than including all other written forms of discourse i.e., newspapers, academic essays, books, exam discourse, and spoken forms of discourse i.e., formal and informal conversations, debates and speeches. Thirdly, the study is also confined in its sampling selection as it compares the use of conjunctive relations in the academic dissertations produced by native (British scholars) with only the dissertations of Pakistani researchers of NUML university which are considered a small sub-set of second language writings in the ESL context.

Fourthly, both native and non-native corpora are limited to only one domain of social sciences such as linguistics and literature. Moreover, the study findings are confined to the applied analysis schemes as it provides the corpus-based analysis of only those logical connectors in both native and non-native corpora that are introduced in Halliday and Hassan's (1976) framework of conjunctive relations and which are further analysed by using Creswell (2007) mixed method approach. Fifthly, the present study is restricted to the product-based analysis of underlying reasons for divergent uses of conjunctive relations as it depends on the quantitative and qualitative results to discover the conjunctive variations in native and non-native research discourse rather than applying different techniques i.e., classroom observations of teaching methods, interviews, and questionnaires.

The limitation of the present study yields future research as results of the study may vary when applied to different native and non-native contexts with large and divergent study samples and study sizes and by applying models other than the Hallidian (1976) model of conjunctive relations.

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