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LEXICAL BUNDLES IN ACADEMIC DISCOURSE: A COMPARATIVE STUDY OF FUNCTIONAL USE OF LEXICAL BUNDLES IN NATIVE AND NON-NATIVE LEARNER CORPORA

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Abstract

The application and consumption of regularly and repeatedly occurring combination of words i.e. lexical bundles perform a central part in educational discourse. There has been quite a limited work done on the comparison between native learners of English and non-native Pakistani learners of English on the usage of functional types of lexical bundles in educational discourse in relation to their regularity and roles. Current research work is directed to explore the maximum recurrently used lexical bundles along with quantitative differences in their occurrence of functional types in academic discourse of Pakistani non-native and native learners of English. It also purposes the comparison and difference between the functional types of lexical bundles found in native and non-native learner corpora. The research took data from ICNALE. It comprises of a corpus of almost two lacs of words consisting of written essays by native and non-native English learners. The investigation involves the identification of functional types of lexical bundles along with their quantitative analysis and qualitative study of function they perform in academic discourse. The "N-Grams" tool in Antconc 3.2.1. is used in extracting the four-word functional lexical bundles from the learner corpora. Findings reveal the overuse of research-and text-oriented functional types of lexical bundles by the non-native learners, while native learners have used participant-oriented types of lexical bundles more than non-native learners in academic discourse.

Keywords: functional types, lexical bundles, academic discourse, native and non-native learners, ICNALE.

1. Introduction

Lexical bundles are considered as the building blocks of language. They are used extensively in native and non-native written and spoken discourses simultaneously. Hyland (2008) has introduced the sub-categories of functional types of lexical bundles. Disparity in the usage of these types by native and non-native learners in academic discourse with reference to the Pakistani non-native learners are not studied extensively, particularly in accordance with the functional types of lexical bundles. In accordance with that, there pertains a need to conduct the present research to bring forth the variations and quantitative variable use of functional types of lexical bundles by the native and non-native learners in academic discourse. Inevitability of lexical bundles as significant constructing written units in academic discourse has been proved by the studies carried on corpus (Biber & Conrad, 1999; Cortes, 2006; Hyland, 2008a; Li & Schmitt, 2009). Different researches on educational corpus have verified the extensive and pervasive use of lexical bundles in written registers (Biber et al., 2004; Biber & Barbieri, 2007). According to Erman & Warren (2000), lexical bundles constitute 52.3% of the written discourse in one study. Thus, according to Coxhead & Byrd (2007), the use of these regular and frequently

occurring word combinations are very important to develop the educational writing abilities for three different reasons at least. At first, these are recurrent and make up the important part of the fundamental facts; then, these are the defining markers as they are very frequently used for successful write-ups; Finally, they make foundation of any language as lexical packages are an amalgamation of grammar and lexis. Some scholars say that the usage of lexical packages at large in academic write-ups show the proficiency of the language users while they are writing, while lesser or no usage of lexical bundles indicates the inexperience of the authors (Haswell, 1991; Cortes, 2004; Hyland, 2008a; Chen & Baker, 2010).

Following this feature, Cortes (2004) is of the view that usage of lexical packages by the writers proves the competence of philological manipulator. Likewise, Ellis, Simpson-Vlach and Maynard (2008) says that regular use of lexical bundles make a regular reptoir. Nevertheless, there are various studies conducted on corpus that show that learners often feel problems in the employment of lexical bundles (Cortes, 2004; Hyland, 2008b; Li & Schmitt, 2009; Chen & Baker, 2010; Wei & Lei, 2011; Malik, Fazal, Moavia, 2019; Adel & Erman, 2012). Although, exploration says that non-native students may provide a large quantity of native-like structures of lexical bundles, their use of lexical bundles is very less which let them to use these sequences largely, which lead these learners to write in non-native way (Li & Schmitt, 2009). However, there are certain studies which show that non-native learners also overuse and underuse some lexical bundles, and these bundles are limited and less varied (Allen, 2009; Adel & Erman, 2012). There are still some learners of second language and advanced non-native English learners who face problems in using lexical bundles (Bishop, 2004; Karabacak & Qin, 2013). Current research is conducted to explore the most frequently used functional types of these lexical chunks in native and non-native educational discourse. It has aimed at investigating the frequency and function of functional categories of lexical bundles in native and non-native academic discourse. Learner corpora from ICNALE is used as reference corpus to conduct the current research. The International Corpus Network of Asian Learners of English (ICNALE) comprises of almost 2.0 million words of English essays and monologues by L2 English learners in ten countries and certain Asian regions as well along with L1 native English speakers. The ICNALE is one of the largest learner corpora ever compiled. It consists of four basic modules: Spoken Monologue, Spoken Dialogue (under compilation), Written Essays, and Edited Essays. An additional module is added into it recently i.e. Written Essays UAE. ICNALE has always been used as reference corpora all around the world to conduct studies on language.

1.1 Aims and objectives

1. To categorize the most frequently used lexical bundles in native and non-native academic discourse.
2. To identify the quantitative differences in the frequency of functional categories of lexical bundles in native and non-native academic discourse?
3. To compare and contrast the frequency of occurrence of functional types of lexical bundles in native and non-native academic discourse.

1.2 Research Questions

1. What are the most frequently used functional types of lexical bundles in native and non-native academic discourse?

2. What are the quantitative differences in the frequency of the functional categories of lexical bundles in native and non-native academic discourse?

2. Literature Review

Biber, et al (1999) crated the term of 'lexical bundle' in (LGSWE). Biber et al. (1999, p. 990) say that lexical bundles are frequently and regularly occurring persistent combination of words, irrespective of the idiomaticity and physical and structural persona. Being just the sequence and plain combination of words they occur together in regularly read and written discourse. Cortes (2004, p. 400) says that lexical bundles are the prolonged collocations many words which occur together in a discourse or register. Biber & Conrad (1999, p. 183) classify these regularly occurring combination of words as sequence of words which occur frequently together, these are the prolonged collocations, consisting of different sequences of words of three or more in a string exhibiting numerical capacity. Minimum frequency cut-off per million words for an occurrence to be considered as a lexical bundle is different for different researchers. Biber et al. (1999) took a cut-off frequency of ten times per million words while Biber et al. (2004) took comparatively high frequency cut-off point of at least forty times per million words. Lexical bundles are different from idioms. They usually perform as incomplete structural units. Chen and Baker (2010) conducted a research on the comparative use of lexical bundles by native and non-native speakers in academic writings of Chinese students. They found certain differences and similarities in native and non-native learner's use of lexical bundles. There were the recurrent sequences that were either overused or underused by the non-native learners as compared to the native leaner's writings. Wei and Lei (2011) explored the usage of lexical bundles in educational works. They found that the progressive learner writers are more frequent in using lexical bundles as compared to the professional. Likewise, Adel and Erman (2012) unearthed that non-native learners use extra restricted and less varied lexical bundles as compared to the native learners. They conducted this research on Swedish L1 speakers and native undergraduate students of Linguistics. LBs perform very important function in academia. Biber et al. (2004) say that these multi-word expressions are used to link the phrases of different types. In other words, they serve as a platform for additional evidence (Biber & Barbieri, 2007). However, there are numerous other scholars as Hyland (2008), Neely and Cortes (2009), and Hyland and Tse (2009) who opine that lexical bundles are acquaintance determining agents for the users of language in any writing. Lexical bundles are classified into structural and functional categories. Three major functions of lexical bundles in a discourse can be identified in respect to their functional classification: (1) stance expressions, (2) discourse organizers, and (3) referential expressions (Biber & Barbieri, 2007; Biber et al., 2004). Stance bundles are used to evaluate the use of any preposition by a writer with regard to certainty or uncertainty; discourse organizers are used to elaborate, introduce and implicate any topic while structuring a text; whereas referential expressions are used to specify any characteristic or condition given in the text.

Hyland (2008) modified the functional categories and introduced the subcategories of the lexical bundles in research writings. These categories are; research-oriented, text-oriented and

participant-oriented. Research oriented lexical bundles are used by the writers in order to organize and structure the experience and activities of real world; text oriented lexical bundles organize such texts which have a message or an argument; whereas participant oriented lexical bundles talk about the readers and writers of the text. Dontcheva-Navratilova (2012) is of the view that the functional and structural categories of lexical bundles which are used by Biber et al. (2004), Biber and Barbieri (2007) and Hyland (2008) overlap and can be used alternatively. Biber et al (1999) has found lexical bundles consisting of three words occurring as more as ten times besides four-word bundles in the academic prose and conversation corpus. While five-word bundles were also in more numbers like four-word bundles. Four-word bundles were the extension of the commonly occurring three-word bundles as they were in abundance. As the Longman Grammar of Spoken and Written English points out, that lengthier recurring expressions are made by either the mixing or addition of new words into shorter combination of words. (Biber et al. 1999:993). By using four-word lexical bundles in their study idiosyncrasies of individual participants were also avoided (Biber et al. 1999:993).

There are large number of studies on lexical bundles in other language other than English such as Spanish (Butler, 1998; Cortes, 2008; Tracy-Ventura, Cortes & Biber, 2007), Chinese (Guanghui, 2009; Wei & Lei 2011; Xianwen, 2007) and Korean (Kim, 2009). According to Hyland and Jiang (2018), there have occurred changes in the use of lexical bundles in academic discourse with respect to the changes in time and space. Damchevska (2019) studied the use of lexical bundles in four disciplines namely, Electrical Engineering, Applied Linguistics, Biology and Economics. The results showed the similarity among the use of lexical bundles in social and natural sciences with the similarity in twenty most frequently used .lexical bundles. Additionally, Cortes (2004) has identified and described the functional and structural properties of lexical bundles in detail. He has provided a comprehensive classification of lexical bundles. Hyland (2008) has conducted a notable series of research on the use of lexical bundles in academic discourse. He (2008b) continues with his identification by claiming that there are certain lexical bundles that are used very frequently in academic discourse than some other bundles. Besides, Darweesh and Ali's (2017) carried out the discourse analysis of political speeches and found that lexical bundles are frequently used for achieving the objectives of the research activities. According to them referential bundles are most abundantly used bundles. Nonetheless, Alquraishi (2014) also conducted a research on the use of lexical bundles and carried out the functional analysis of bundles.

On the other hand, Viana (2007) carries out the functional analysis of lexical bundles in relation to literature and linguistics. Likewise, Zare and Nasen (2020) study the functional and structural properties of lexical bundles in review articles of applied linguistics and linguistics. In the same way, Ucar (2017) studies the grammatical and functional structures of 3-word lexical bundles in Turkish and English scientific research articles. He noted an underuse of lexical bundles by Turkish scholars. Likewise, Chen and Baker (2010) study lexical bundles in the work of native and non-native writers. They compared the expert native writers with novice native and non-native writers, and identified the similarity among novice native and non-native writers in the use of lexical bundles. However, Amirian (2013), while studying the functional patterns of lexical bundles, found that frequent use of lexical bundles by Iranian researchers which signify their objective approach as compared to native researchers. She identifies the frequent use of research-oriented bundles by Iranian researchers as compared to native writers who prefer to use text-oriented bundles more frequently. In addition, Güngör and Uysal (2016)

have studied the lexical bundles with respect to the grammatical and functional level used by English and Turkish scholars. Nonetheless, Gezegin (2019) investigates the functional and structural categories of 4-word bundles in academic discourse written by Turkish scholars. Correspondingly, Al-Ta'i (2006) compares the use of lexical bundles in the introduction section of the research articles written by native and non-native researchers. He concluded that native researchers use more lexical bundles than non-native researchers do. Besides, Williams (2010), studies the use of lexical bundles and found the variation in their use regarding their particular culture.

3. Research Methodology

The present study employs both quantitative and qualitative techniques to identify and analyse the functional categories of lexical bundles in native and non-native academic discourse. The study is corpus-based and the classification and sub-categorization of lexical bundles maintained the linguistic pre-set criterion proposed by Hyland (2008). Native and non-native corpora of academic discourse is taken from ICNALE. Non-native corpus consists of data taken from Pakistan, covering the topics of part-time job and smoking. While native corpus consists of data taken from three countries where English is spoken as 1st language covering the same topics, The "N-Grams" tool in Antconc 3.2.1is used in extracting the four-word functional lexical bundles from the corpora.

3.1 Scheme of data

The following table gives the distribution of native and non-native corpus.

Table 1: Corpus Scheme

Data	Total Token	Total Types
Native	91429	81602
Non-native	94477	83425

3.2 Theoretical framework

The classification of lexical bundles is based on the functional categories suggested by Hyland (2008). This functional taxonomy is used as framework in the current study. The categories of functional types of lexical bundles by Hyland (2008) are as follows:

1. Research-oriented,
2. Text-oriented
3. Participant-oriented

Further division of these categories is given below:

Table 2: Categories of Lexical Bundles

Categories	Sub-categories
Research	Location
	Description
	Quantity
	Procedure

	Topic
Text	Structuring
	Framing
	Transition
	Resultative
Participant	Engagement
	Stance

4. Data analysis

To accomplish the first objective of the current study, fifty most frequently used functional types of lexical bundles in the academic discourse of native and non-native learners were counted by using the "N-Grams" tool in Antconc 3.2.1. Frequency of occurrence of these lexical bundles by using the above mentioned tool appeared as given in the following picture:

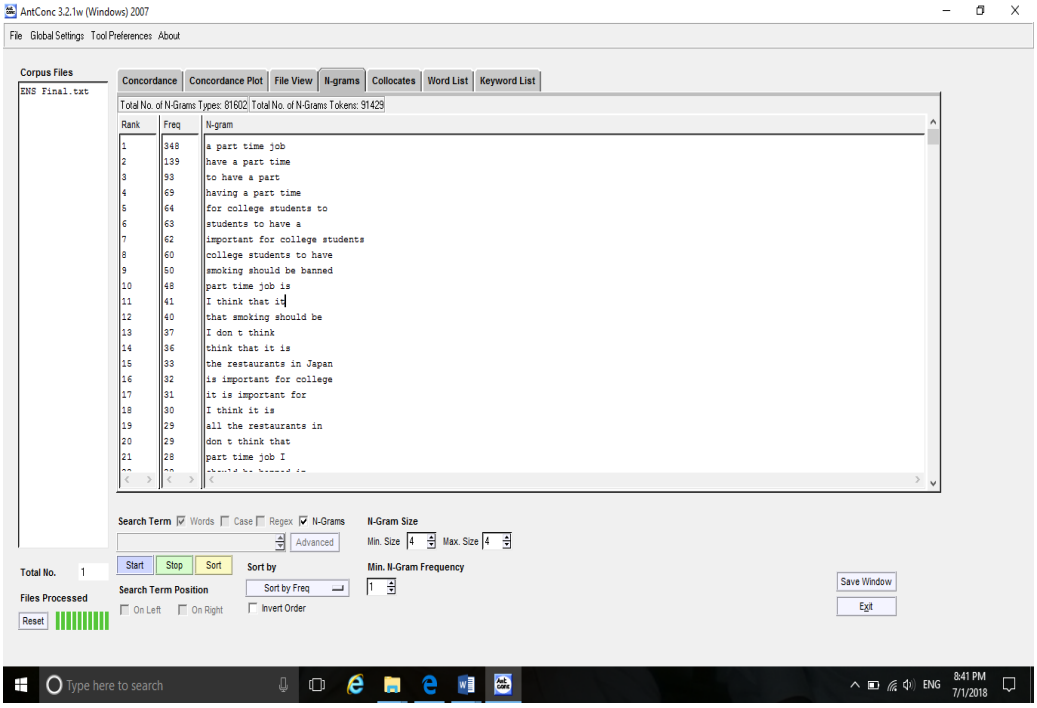

Fig. 1. N-grams (AntConc Screenshot)

In order to be more explicit, a sample of frequency of occurrence of first 10 LBs in both native and non-native discourse is presented in the following tables:

Table 3. Most frequent four-word functional types of LBs in Native learner's academic discourse

S.No	Frequency	4 word LBs	Category	Sub-category
1	348	Part time job	Research	Topic
2	139	have a part time	Research	Topic
3	93	to have a part	Research	Quantity

4	69	having a part time	Research	Quantity
5	64	for college students to	Participant	Engagement
6	63	students to have a	Participant	Engagement
7	62	important for college students	Text	Resultative
8	60	college students to have	Research	Topic
9	50	smoking should be banned	Research	Procedure
10	48	part time job is	Research	Topic

Table 4. Most frequent four-word functional types of LBs in Non-Native learner's academic discourse

S.No	Frequency	4-word LBs	Category	Sub-category
1	105	Part time job is	Research	Topic
2	79	Do part time job	Research	Topic
3	71	A part time job	Research	Topic
4	65	Do part time jobs	Research	Topic
5	62	Part time job is	Research	Topic
6	58	Should be banned in	Research	Procedure
7	54	Smoking should be banned	Research	Procedure
8	49	The part time job	Research	Topic
9	45	Doing part time job	Research	Topic
10	41	Of part time job	Research	Topic

Before investigating the functional types of lexical bundles, categories were given to them which are based on their proper and careful matching with sub-categories proposed by Hyland (2008). The frequency of occurrence of sub-categories along with the instances of functional types of lexical bundles given in the table below meets the second objective of the current study.

Table 5. Number and Example of Functional LBs in Native and Non-Native academic discourse

Functions	Sub-categories	Examples
Research	Procedure N=15	The restaurants, in japan. at college,
	Location N=15	Should be banned, are banned, to ban
	Topic N=36	One of , a part
	Description N=9	The value of, is a bad, not good for
	Quantity N=4	Part time job, jobs are,
Text	Structuring N= 0	On the other hand
	Resultative N=8	so that, thus, therefore, in this way, is injurious to
	Transition N=1	
	Framing N=0	
Participant	Engagement N= 2	I think, I believe, don't know

	Stance N= 15	those who, other people, who have

5. Results and Discussions

The four most commonly used functional types of lexical bundles by the native and non-native learners in the current study in the academic discourse are the LBs signifying topic, procedure, stance and location. It is verified by the following abstract extractions from native and non-native corpora.

a) Topic

1. As they realize that many areas now don't allow smoking many people are inclined to cut back on the number of cigarettes they smoke, thus leading to healthier lifestyle for **smokers and nonsmokers** alike. **(Native)**
2. **In the part time job** people get the extra money. **(Non-native)**

Lexical bundles of this sub-category give detailed description about the discussed topics. These lexical bundles help and guide the readers about the use of specific topics in the text and discourse as discussed in sentence two in the example given above, that can be the introduction or change of the topic.

b) Procedure

1. I agree with the given statement that smoking **should be banned in** all restaurants in Japan. **(Native).**
2. Although the **smoking should be banned** in the restaurants and other public places to save the environment as well as health of the other people who are not addicted. **(Non-native)**

Lexical bundles belonging to this sub-category give the description of how something is done as described in sentence one give above. These lexical bundles specify the intention and objective of the action as shown on the sentence 2 given above.

c) Stance

1. Other smokers in different parts of the world seemed to have managed OK with their bans **and I think that** Japan is capable of managing it as well. **(Native)**
2. Alcohol and some other drugs have over the years gone through various states of prohibition and usage, **and I believe that** the main difference between tobacco comes down to the effects upon the masses. **(Non-native)**

Lexical bundles that are used by learners and writers to give their stance and viewpoints as shown in above given two sentence. It can be a technique on the part of the writers and learners to give an opinion rather that stating a fact. The writers, about any idea that needs supporting facts also uses stance bundles to express uncertainty.

d) Location

1. So, if these results become well published or distributed in some other manner, even though I am sure the Japanese already know a lot about this kind of thing, it will make a big step towards **banning smoking in restaurants** a reality. **(Native)**

2. While the restaurants **are a public place**, where people come to eat and refresh themselves. **(Non-native)**

This sub category of lexical bundles describes the use of time and place by the writer. It depicts the place and time of the incident, when something was done or supposed to be done. It is clear from the above sentences that these lexical bundles are used to designate a place and time to any action.

To meet the third objective of the study which is the contrast and comparison of functional types of lexical bundles in native and non-native academic discourse. The similarity in pattern of distribution for both types is found. With almost 74% of occurrence frequency, research oriented lexical bundles are at first position while, participant-oriented bundles with almost 17% of frequency of occurrence are at second position whereas with the 9% frequency, text-oriented bundles are at third and last position. In the categories of research-oriented and text-oriented bundles, the use of lexical bundles by non-native learners surpass the native learners while in participant-oriented bundles native learners take the lead. Frequency of occurrence of different categories is presented in following tables:

Table 6. Occurrence of functional categories in native and non-native academic discourse

Categories	Native	Non-native	Sub-category	Frequency N	Frequency NN
			Location	7	3
			Procedure	7	8
Research-oriented	33	41	Quantity	3	1
			Description	4	5
			Topic	12	24
Text-oriented	2	7	Transition	0	1
			Resultative	2	6
			Structuring	0	0
			Framing	0	0
Participant-oriented	15	2	Stance	13	2
			Engagement	2	0

The frequency distribution of the use of the functional types of LBs among native and non-native learners in academic discourse is presented in graph given below:

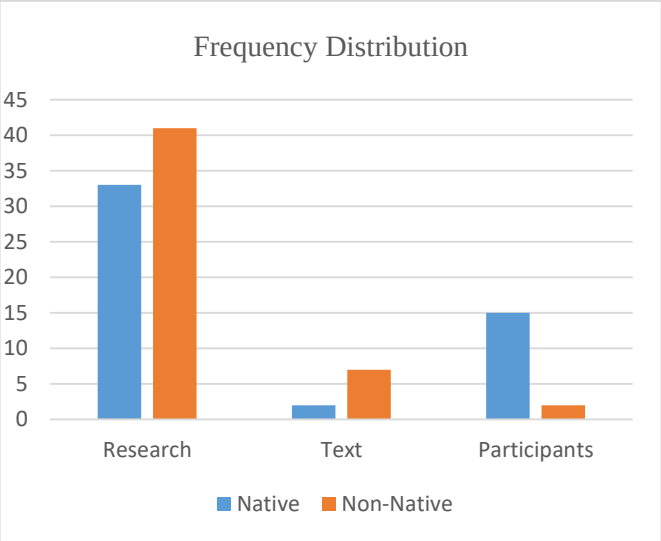

Fig. 2. Functional Distribution of LBs in Native and Non-native Corpus

6. Conclusion

The present research activity is significant as it unfolds the variable use of functional types of lexical bundles in native and non-native learner corpora with special reference to Pakistani non-native learners. It expresses the regular usage of lexical chunks along with the commonly used functional types of lexical bundles. There is no considerable work done on this aspect with focus on the Pakistani non-native learners until now. Therefore, this study fills this gap and presents not only the regularly used lexical bundles but also brings forth the attitude of native and non-native learners towards the usage of lexical bundles. This study most definitely is a help for new researchers to explore the attitude and choice of varied combinations of lexical bundles of same contexts by native and non-native learners in academic discourses. The research has mainly the small size of data as learner corpora. It is limited in scope as it has only focused on the four-word combinations of the words instead from two to six word combinations. Because of this constraint, this study cannot pin point the prevalent variation in the use of functional categories at the level of two words or more than four words. On the other hand, the frequent occurrence of functional types of lexical bundles may express the difference in learning strategies and behavior of the learners among native and non-native conditions. Analysis of the data specifies the fact of important role; the functional types of four-word lexical bundles play in academic discourse. It is therefore, important for language teachers and learners to be aware of this reality. Though native learners have used participant-oriented bundles more than non-native speakers, it expresses the self-assurance to engage the audience and express their views. They have used more stance bundles that show their confidence about whatever they are saying. In addition, it depicts the reality about the native learners being more interactive and expressive than non-native speakers. They have an inherent knowledge of the types and purposes of the bundles. Moreover, Non-native speakers learn English language with conscious efforts, subsequently they are not certain about what they say or write in English. Therefore, they have used less participant-oriented bundles than native learners. The use of research-oriented and text-oriented functional bundles by non-native speakers is greater than native speakers in academic discourse. Although the difference is not significant but it shows the approach of non-native learners towards their adhering attitude to the topic and uncertain behavior about the description of things. Non-native

speakers give more contradictory comments about a thing as they use resultative LBs than native learners.

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Appendix A

1	348	a part time job
2	139	have a part time
3	93	to have a part
4	69	having a part time
5	64	for college students to
6	63	students to have a
7	62	important for college students
8	60	college students to have
9	50	smoking should be banned
10	48	part time job is
11	41	I think that it
12	40	that smoking should be
13	37	I don t think
14	36	think that it is
15	33	the restaurants in Japan
16	32	is important for college
17	31	it is important for
18	30	I think it is
19	29	all the restaurants in
20	29	don t think that
21	28	part time job I
22	28	should be banned in
23	27	that it is important
24	24	at all the restaurants
25	24	part time job and
26	24	part time job in
27	23	ban smoking in restaurants
28	23	should have a part
29	22	have part time jobs
30	22	is very important for
31	22	should be banned at
32	21	at restaurants in Japan
33	20	A part time job
34	20	have the right to
35	19	smokers and non smokers
36	19	to ban smoking in
37	18	banned at all the
38	18	I don t know
39	18	think that smoking should

40	17	and I think that
41	17	I don t believe
42	17	is one of the
43	17	the value of money
44	17	very important for college
45	16	banning smoking in restaurants
46	16	be banned at all
47	16	don t believe that
48	16	part time job can
49	16	part time job while
50	16	so that they can

Appendix B

1	105	part time job is
2	79	do part time job
3	71	a part time job
4	65	do part time jobs
5	62	Part time job is
6	58	should be banned in
7	54	smoking should be banned
8	49	the part time job
9	45	doing part time job
10	41	of part time job
11	38	part time job to
12	35	time job is necessary
13	34	is very dangerous for
14	30	job is necessary for
15	30	to do part time
16	29	be banned in restaurants
17	29	doing part time jobs
18	29	Smoking is a bad
19	28	is a bad habit
20	28	part time jobs are
21	28	Smoking should be banned
22	26	Part time jobs are
23	24	people do part time
24	24	time job is very
25	23	it should be banned

26	23	part time jobs to
27	21	be banned in all
28	21	is injurious to health
29	21	is not good for
30	19	part time job for
31	19	should be banned at
32	19	time job is a
33	18	that part time job
34	17	do a part time
35	17	In this way they
36	17	in this way they
37	17	to fulfill their needs
38	16	attention to their studies
39	16	is a public place
40	16	is one of the
41	16	is very bad habit
42	16	part time job In
43	16	students do part time
44	15	do the part time
45	15	On the other hand
46	15	part time job can
47	15	the passage of time
48	15	they do part time
49	14	banned in all restaurants
50	14	is very common in