

Pedagogic Processing of Corpora and Its Effects on ESL Learners' Medium-Term Language Awareness Enhancement

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Abstract

Tim John's Data-Driven Learning (DDL) is further developed as Pedagogic Processing of Corpora (PPC) in classroom language teaching. In this study, a group of ESL learners (the Experimental Group) acquire vocabulary by being exposed to a large quantity of teacher-edited language materials from the corpora. In this implementation, a free-of-charge online vocabulary inquiry system, which is user-friendly for teachers even whom are without any know-how of corpus linguistics, is applied. Another group of ESL learners (the Control Group) are taught by the conventional method. The collected data from these two groups is assessed to evaluate the new method's effects on learners' medium-term language awareness enhancement. The empirical evidence of medium-term effects of PPC is beneficial for making its inroad to the mainstream of pedagogy.

Keywords: Pedagogic Processing of Corpora (PPC), language awareness

1. Introduction

The pedagogical values of corpus for English Language Teaching (ELT) have been widely acknowledged and exploited, e.g., the three groundbreaking works: Sinclair's (1987, 1991) work with COBUILD; Johns' (1986, 1991) Data-Driven Learning (DDL); and Mindt's (1981) empirical grammar research. DDL, further evolved as Pedagogic Processing of Corpus (PPC), is the subject of this research paper. The pedagogical application of corpus is beneficial for transforming ELT in China which is notorious for being ineffective and inefficient. Furthermore, the importance of PPC lies in not only learners' short-term retention of the target items, which is the main purpose of a large body of research papers on PPC, but also its medium-term or even long-term effects on learners' language awareness enhancement. Finally, the empirical evidence of medium-term effects of corpus-based lexical teaching is beneficial for it to become a mainstream pedagogy.

This paper aims to design a new corpus-based teaching approach to resolving some already known vocabulary teaching and acquisition difficulties commonly experienced by ESL teachers and learners; such as collocation, colligation, and semantic meaning; so as to raise learners' language awareness in the Chinese context. The new approach does not require expertise in corpus linguistics which might intimidate many ESL teachers, instead, a user-friendly and free-of-charge online vocabulary inquiry system based on corpus linguistics, which is named Just-the-Word, is introduced and applied in the lexical teaching. The application of the new corpus-based lexical teaching is observed and participants have pretest and posttest. The collected data is analyzed to evaluate the new method's effects on learners in terms of language awareness enhancement.

2. Theoretical Framework

There are two general L2 lexical teaching approaches: one is "the word association approach", with the meaning of words and their L1 translation being imparted to learners; the other is "the contextualized approach", emphasizing the learning of L2 words in context (Jiang, 2000, p. 70). The contextualized approach encourages meaning inference and attempts to minimize learners' reliance on L1. This approach seems to be more effective for the development of learners' L2 lexical competence (Jiang, 2000, p. 70). The pedagogical application of corpus belongs to the contextualized method. Corpus application in the classroom is categorized as being of two types: indirect and direct (Romer, 2006, pp. 124-126). The indirect application is quite successful but the direct use of corpus in the classroom teaching has encountered many difficulties. Romer (2011) claimed that "fostering

direct uses of corpora in L2 learning” and “focusing on learner and teacher needs” are two important topics for future development. My research attempts to improve the direct pedagogical application of corpora in accordance with learner and teacher needs. In the corpus-based lexical teaching, learners are exposed to a large quantity of authentic language data selected by the teacher using Just-the-Word system. In a classroom unequipped with any computers, using selected print-outs is the only solution. Sentences are shown in KWIC (key-word-in-context) format, the visually enhanced contextualized input, which can trigger learners to notice the target. Learners’ attention is drawn on the discrepancies between learners’ interlanguage and the language of native speakers (Osborne, 2004), in terms of semantic, syntactic, and morphological knowledge of the words.

Alex Boulton has conducted a series of experiments to test and analyze DDL’s effects on ESL learners of various disciplines at different levels (2006, 2011, 2012a). He concludes that DDL has great potential but still needs improvement. I have applied the corpus-based lexical teaching method to students of various disciplines at both undergraduate and postgraduate levels (Shi, 2012, 2013a, 2013b). My observation and research reveal that interaction between learners and teachers and teachers’ mediation are of great importance. Contrary to Tim Johns’ “cutting out the middleman” (1991), learners are in demand of teacher’s more involvement in the selection of materials and facilitation in the teaching and learning process. Learners require teachers to select language materials according to their language proficiency level and specialty.

3. Implementation of PPC

This research involves the participation of 46 business English majors, with average age of 19, in their first year of study at college in Mainland China. There are 23 students in the experimental group and 23 in the control group respectively. The students have been learning English for eight years but they still have problems in communicating with English native speakers because of the exam-oriented educational system of high school. They learned English in order to pass high-stake exams in order to get admitted by colleges. The current primary teaching objective is to improve students’ all-four skills of English. To this end, the language course focuses on listening, reading (mainly grammar and vocabulary), speaking and writing. Conditions for the experimental group and the control group are essentially identical: a total of 160 minutes of English class per week on the same days and times, with the same teaching materials, facilities and evaluations.

PPC is implemented in the vocabulary teaching for the experimental group whereas the conventional vocabulary teaching approach remains unchanged in the control group. Since the classroom is not equipped with computers and time does not permit extensive training of corpus for students, I use print-outs with selected language items by using the online inquiry system, supported and powered by Just-the-Word. The system is not daunting for teachers who are without know-how of corpus linguistics and saves them a lot of time and efforts in selecting language materials from corpus. The interface is user-friendly, as is shown in Figure 1. The teacher types in the target item and click on “combinations” and then the requested lexical information is displayed.

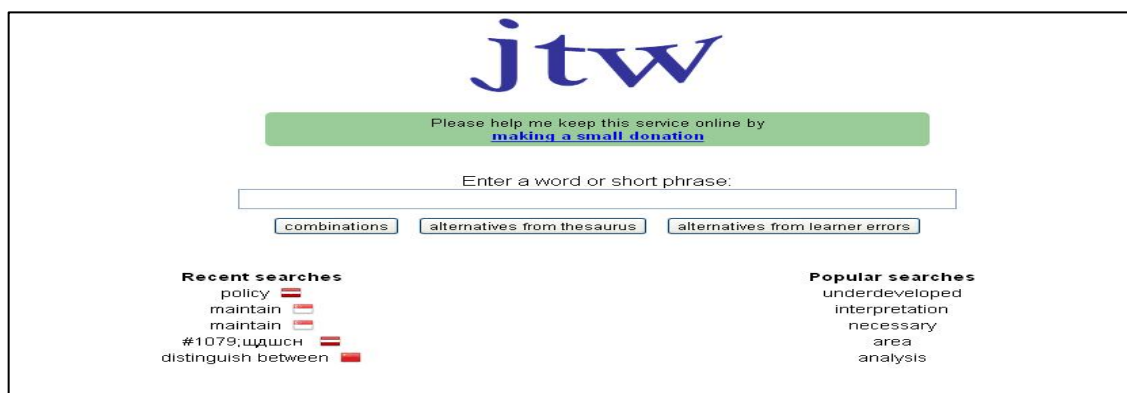


Figure 1. The interface of Just-the-Word

The word “distinguish” is used as an example in the following illustration. After “distinguish” being typed in, teachers can find the collocation and collision of the word, as being displayed in Figure 2. The frequency of the collocation is stated clearly and the green bar indicates the collocation is accepted by most native speakers as being accurate and appropriate. The longer the green bar, the more frequently the collocation is used. The teacher clicks on the collocation, in this case, “distinguish between form”, and the examples are shown in a KWIC

format which is very convenient for teachers to use in print-outs (see Figure 3)

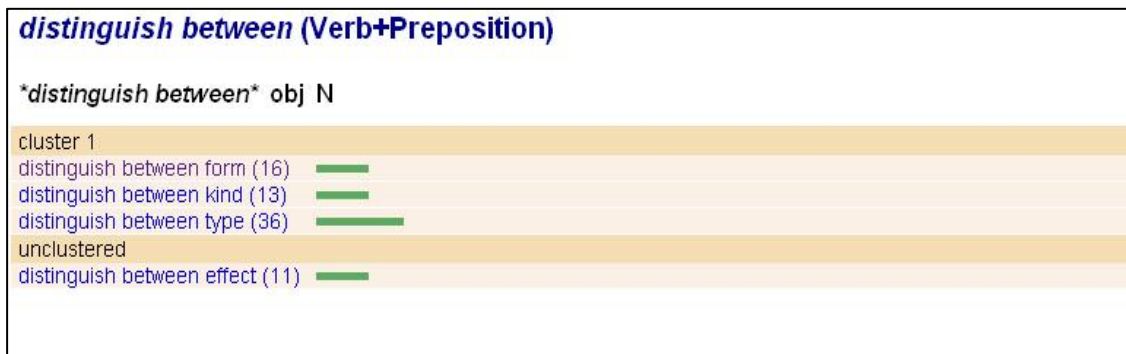


Figure 2. The frequency of “distinguish between”

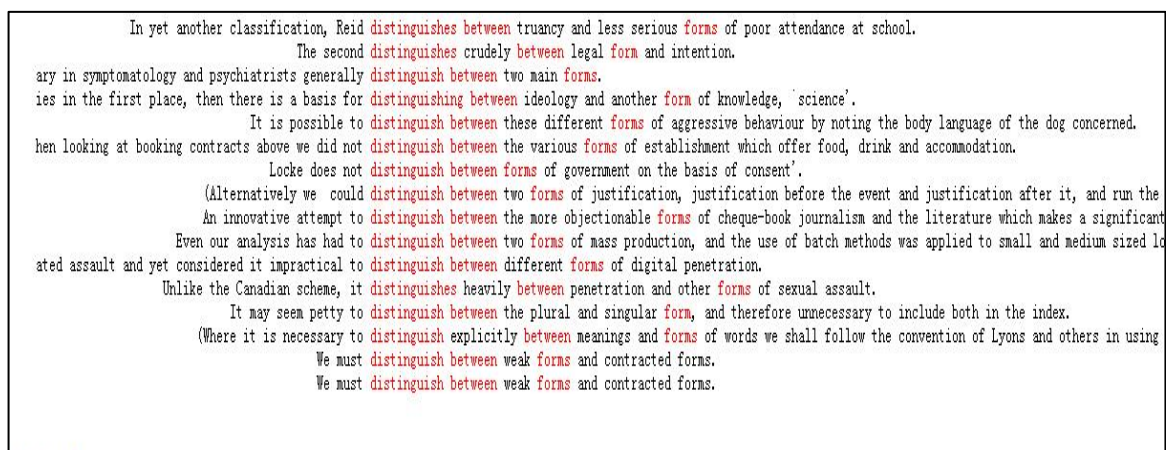


Figure 3. “Distinguish between forms” in KWIC format

The print-outs are ready for students to observe during the lexical teaching. Questions like “What’s the most frequently-used word after X?” and “What nouns usually follow X?” are asked and students go through the language materials thoughtfully to find out the answers. Besides, students have time to predict and hypothesize the word use. Later on, some of them are chosen to report their findings to the whole class. It is common that the other students have different ideas about the use of the words. We have a heated discussion about the usage of the words.

4. Research Method and Data Analysis

Learners in both the experimental group and the control group were given a short pretest and posttest to assess their language awareness enhancement. Since there is no standard test or procedure for assessing learners’ language awareness, the pretest and the posttest are designed according to Boulton’s tests (2012b). The tests are of the identical pattern: reading comprehension exercises of two short articles of the same word count, from the magazine *the Economist*, with a business focus on similar topics (see Appendix 1 & 2). The levels of the articles are analysed and evaluated by Paul Nation’s Software *Range* so as to ensure the vocabulary of the two articles are of the similar level (see Table 1 & 2).

Table 1. Results of *Range's* test, results of article I

WORD LIST	TOKENS/%	TYPES/%	FAMILIES
One	0/ 0.00	0/ 0.00	0
Two	7/10.00	6/12.77	6
Three	10/14.29	10/21.28	9
Not in the list	53/75.71	31/65.96	N.A.
Total	70	47	15

Table 2. Results of *Range's* test results of article II

WORD LIST	TOKENS/%	TYPES/%	FAMILIES
One	0/ 0.00	0/ 0.00	0
Two	12/ 8.57	9/11.69	9
Three	23/16.43	22/28.57	21
Not in the list	105/75.00	46/59.74	N.A.
Total	140	77	30

The participants were told they would have five minutes to read the article, which would be retrieved subsequently before they answered the questions in the tests within 3 minutes. Each of the tests has twenty items (see appendix 3 & 4). The first ten focus-on-form questions simply required them to remember which of two words had been used in the article, each pair having similar form or meaning. The second ten focus-on-meaning questions asked participants to choose the translation of the word from the article. Neither have the selected language points been covered in the course, nor had the participants known the type of questions before the tests.

The test scores of the participants in both the experimental group and the control group are illustrated in Table 3. Learners in the experimental group are labeled as from A1 to A23; learners in the control group, as from B1 to B2. The average score of the experimental group in pretest is 13.30 and that of the control group in pretest is 13.22. The difference between the two groups is not significant, which indicates that the learners of the two group are of the similar level of language awareness. After the implementation of language teaching for four months, with the experimental group being taught via PPC and the control group the traditional method, all the learners sit the posttest. The average score of the experimental group is 14.83 and that of the control group is 14; the difference between the two groups in posttest is statistically significant, which implies PPC is more effective in enhancing learners' language awareness than the traditional method.

Table 3. Test scores of two groups

Group	Experimental		Control	
	Pretest Scores	Posttest Scores	Pretest Scores	Posttest Scores
A1	13	16	B1	15
A2	15	14	B2	12
A3	13	13	B3	13
A4	13	15	B4	9
A5	10	13	B5	12
A6	13	16	B6	12
A7	16	17	B7	14
A8	11	15	B8	15
A9	11	15	B9	13
A10	15	14	B10	14
A11	9	16	B11	12

A12	17	13	B12	10	16
A13	13	16	B13	16	14
A14	16	14	B14	15	13
A15	13	16	B15	17	14
A16	14	14	B16	11	15
A17	12	13	B17	15	12
A18	12	14	B18	14	16
A19	14	15	B19	15	12
A20	14	15	B20	13	14
A21	12	16	B21	11	13
A22	15	16	B22	11	14
A23	15	15	B23	15	15
Average Score	13.30	14.83	Average Score	13.22	14

The statistics are analyzed further by using SPSS 19.0, being assessed in an independent-samples t-test. Both of the two groups are divided into three levels: level I of participants scored 9-11; level II of participants scored 12-14; level III of participants scored 15-17. The differences between the scores of pretest and posttest of the experimental group at three levels are illustrated in Table 4. The differences between the scores of pretest and posttest of the control group at three levels are presented in Table 5.

Table 4. Differences in scores between pretest and posttest of the experimental group

Levels	Differences in scores between pretest and posttest (posttest- pretest)
Level I (9-11)	4.5
Level II (12-14)	1.92
Level III (15-17)	-0.86

Table 5. Differences in scores between pretest and posttest of the control group

Levels	Differences in scores between pretest and posttest (posttest- pretest)
Level I (9-11)	4.4
Level II (12-14)	0.7
Level III (15-17)	-1.5

The two sets of statistics are assessed in an independent-samples t-test. Differences of scores at Level I are statistically significant as shown in Table 6 ($p < 0.05$).

Table 6. Results of independent-samples t test of Level I

Independent-Samples T Test										
		Levene's Test for Equality of Variances				T-test for Equality of Means				
		F	Sig.	t	df	Sig.(2-tailed)	Mean Diff.	S.E.Diff.	95% Confi.Interval of Diff.	
								Lower		Upper
Average Score (Posttest-Pretest) Level I	Equal Variances Assumed	.	.	.	0	.	.10000	.	.	.
	Equal Variances	.	.	.	.	.	.10000	.	.	.
	Not Assumed									

Differences of scores at Level II are statistically significant as shown in Table 7 ($p < 0.05$).

Table 7. Results of independent-samples t test of Level II

Independent-Samples T Test										
		Levene's Test for Equality of Variances				T-test for Equality of Means				
		F	Sig.	t	df	Sig.(2-tailed)	Mean Diff.	S.E.Diff.	95% Confi.Interval of Diff.	
								Lower		Upper
Average Score (Posttest-Pretest) Level II	Equal Variance Assumed	.	.	.	0	.	1.22000	.	.	.
	Equal Variance	.	.	.	.	.	1.22000	.	.	.
	Not Assumed									

Differences of scores at Level III are statistically significant as illustrated in Table 8 ($p < 0.05$).

Table 8. Results of independent-samples t test of Level III

Independent-Samples T Test								
		Levene's Test for Equality of Variances				T-test for Equality of Means		
	F	Sig.	t	df	Sig. (2-tailed)	Mean Diff.	S.E.Diff.	95% Conf. Interval of Diff.
Average Score (Posttest -Pretest)	Equal Variances Assumed	.	.	0	.	-.6400	.	.
Level III	Not Assumed	.	.	.	.	-.6400	.	.

The following conclusions are drawn from the results of independent-sample t-tests of the differences between scores of the experimental group and the control group at three levels:

First, among the three levels, learners of both two groups at Level I enhanced their language awareness most dramatically. Learners' level of language awareness in the experimental group is higher than that of the control group. Both of the two methods are beneficial for learners' language awareness enhancement but PPC is comparatively more effective.

Second, the language awareness of learners of two groups at Level III decreased and the learners in the control group decreased more. The two vocabulary teaching methods are not very suitable for advanced learners to improve their language awareness.

Third, the language awareness of learners of two groups at Level II was enhanced, with PPC more effective and the differences in the level of language awareness are statistically significant. The result indicates that medium-level learners benefit most by adopting PPC. It is probably because they are fed up with the traditional method but with great potential in language learning and interests in the innovative method.

5. Conclusion

This paper reports on a simple experiment designed to test whether PPC leads to medium-term benefits in language awareness enhancement. Contrary to Boulton's (2012b) findings, the experimental group improved more than the control group, and the difference meets the standard levels of significance.

The application of the online query system Just-the-Word facilitates teachers with no background in corpus linguistics to implement PPC successfully in their vocabulary teaching. This is vital for PPC to find its inroad in the mainstream of pedagogy. Compared to Boulton's test of language awareness, the method used in this research is more logical and scientific with lots of variables tightly controlled. The results indicate that PPC is more effective and efficient in vocabulary teaching for learners to enhance their language awareness at low and medium levels. PPC is most suitable for medium-level learners to improve their language awareness. Previous researches focus on the retention of target items; however, this study is on the medium-term effect of language awareness enhancement, which is reckoned to be the beauty of the pedagogical application of corpus linguistics. It is hoped that this study can contribute significantly to the undeniable need to educate students to be more informed, curious, and critical in English language teaching and learning.

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Appendix A

The Article for Pretest, Multinationals in emerging markets

Must try harder

The ambitions of Western firms in emerging markets far exceed their efforts

Sep 14th 2013

SPEAK to the boss of a big, rich-world multinational company and he will soon wax lyrical about the attractions of emerging markets. Even recent wobbles in some of these countries have not curbed vocal enthusiasm for the BRICS and other collections of high-growth markets, whose prospects have more than offset a gloomy prognosis for the maturing, growth-starved domestic markets of the developed economies. So, with the source of future profits so clearly identified, presumably such firms are doing everything possible to succeed in emerging markets?

Strangely, it seems they are not. Or so says a new report, "Playing to Win in Emerging Markets", by the Boston Consulting Group (BCG). The consultancy polled over 150 executives from the world's biggest multinational companies. So far, those firms have not done badly, earning on average 28% of their revenues in emerging markets. Yet nearly four-fifths of them expect to gain market share, which could be trickier.

Many multinationals base their entire senior management team at home, where they are too remote to tackle the challenges involved in conquering new territories. Those firms that have moved at least two of their top 20 executives to the new front line have outperformed their rivals by far, says BCG. Schneider Electric recently relocated several senior people, including the boss, to Hong Kong.

Global firms are also finding the going increasingly tough against local competitors. The domestic firm can focus better on its home market, adapt more swiftly to changing conditions and is often prepared to take more risk, says BCG. And nowadays it can tap the global market for the same people, capital and technology deployed by multinationals and attract talented local managers.

What can multinationals do to fight back? David Michael, one of the authors of the report, reckons they need to treat emerging economies as their “new core markets”, if necessary changing their entire business models to make themselves more nimble and entrepreneurial.

Why are multinational bosses not walking their emerging-market talk? One risk, as discovered last year by the (now retired) boss of Procter & Gamble, is that by devoting too much attention to emerging markets their company will lose focus on the rich countries that still, for now, provide the bulk of its profits.

Appendix B

The Article for Posttest, Guardian warriors and golden eggs

The state’s crackdowns on big firms are not all about bashing foreigners

Aug 22nd 2013

Foreign companies love to complain about doing business in China. The rules of the game are rigged against them, they grouse, the locals are corrupt and the government is always turning the thumbscrews on them. Amid such moans it is worth remembering that, for all the barriers that foreign multinationals face in China, it has welcomed them with open arms compared with the protectionism imposed by Japan and South Korea at comparable stages in their economic development. Nevertheless, the recent spate of high-profile crackdowns on international firms, and people associated with them, has prompted worries about a generalised anti-foreigner backlash.

This week police in Shanghai formally rounded a British fraud investigator, Peter Humphrey, whom they had detained for six weeks as part of an inquiry into alleged bribery of doctors by foreign drug firms, along with his wife, also an investigator. Mr Humphrey had done work for Glaxo Smith Kline (GSK), a British drugs firm, four of whose Chinese managers were arrested last month. Since these arrests other foreign drugmakers have come under investigation, including Sanofi and Eli Lilly. All three firms say they will co-operate with the inquiries. There have also been crackdowns on alleged price-fixing by foreign manufacturers of milk formula, and regulators are scrutinising the prices charged by foreign carmakers and their joint ventures with local firms.

Now foreign technology firms are worried that they may be next. Chinese nationalists were outraged when Huawei, a local telecoms-equipment giant, was blacklisted last year by American politicians on unsubstantiated allegations of spying. But they grew apoplectic when Edward Snowden earlier this year revealed the extent of American spying on China. Official media outlets have since been calling for the expulsion of Cisco and other leading American technology firms, dubbed the “eight guardian warriors”.

This has made some observers nervous. Rhodium Group, a consultancy, gave warning that “The implications for business prospects of foreign firms operating in the world’s second largest economy are potentially far-reaching.”

So, is the new Chinese government really about to boot out the foreigners? Not likely. Cut through the official media’s hype about greedy foreigners and it seems that a mix of motives is at work.

Consumers are growing ever angrier about the cost of living in China’s main cities, be that the souring prices of homes, health care or safe food. So it seems the government, which despite its tight grip on power does care about public opinion, is putting on a noisy show of trustbusting. Foreign firms are not the only targets: recent action on alleged price-fixing by jewellers and the distillers of spirits, for example, nabbed only Chinese firms. The antitrust regulator is now promising to get tough on telecoms and banking—two industries dominant by domestic (and indeed state-owned) firms.

Appendix C

Pretest Sheet

1. Which of the following words are used in this article?

- 1) A. gloomy B. bloomy

- 2) A. multinational B. multifunctional
 3) A. stock B. share
 4) A. wobble B. cobble
 5) A. consultancy B. consultant
 6) A. anticipation B. prospect
 7) A. probably B. presumably
 8) A. income B. revenue
 9) A. conquer B. overcome
 10) A. deploy B. marshal

- 1)-5) _____
 6)-10) _____

2. Choose the best translation for the words from the article.

- 1)emerging
 A. 出现的 B. 展现的 C. 紧急的 D. 急迫的
- 2)offset
 A. 设置 B. 抵消 C. 抵挡 D. 抵抗
- 3)senior
 A. 高级 B. 中级 C. 低级 D. 平级
- 4)tackle
 A. 解释 B. 解决 C. 决定 D. 解放
- 5)outperform
 A. 出现 B. 表现 C. 比.....更逊色 D. 比.....更出色
- 6) rival
 A. 亲戚 B. 朋友 C. 对手 D. 合作伙伴
- 7) swiftly
 A. 缓慢地 B. 迅速地 C. 平稳地 D. 敏锐地
- 8) reckon
 A. 认为 B. 思考 C. 解释 D. 指出
- 9) nimble
 A. 敏捷 B. 缓慢 C. 迟钝 D. 敏锐
- 10)entrepreneurial
 A. 企业主 B. 进取的 C. 企业 D. 落后的
- 1)-5) _____
 6)-10) _____

Appendix D

Posttest Sheet

1. Which of the following words are used in this article?

- 1) A. company B. corporation
 2) A. rouse B. grouse
 3) A. carrier B. barrier
 4) A. protectionism B. protectionist
 5) A. spate B. space

6) A. fraud B. deception

7) A. inhibit B. detain

8) A. arrest B. seize

9) A. assert B. allege

10) A. offend B. outrage

1)-5) _____

6)-10) _____

2. Choose the best translation for the words from the article.

1) complain

A. 赞美 B. 抱怨 C. 解释 D. 提出

2) corrupt

A. 腐朽 B. 腐蚀 C. 贪婪 D. 腐败

3) prompt

A. 导致 B. 促进 C. 变成 D. 发生

4) manufacturer

A. 广告商 B. 生产商 C. 经销商 D. 公司

5) crackdown

A. 抵制 B. 镇压 C. 反抗 D. 胁迫

6) backlash

A. 强烈反对 B. 强烈支持 C. 拖后腿 D. 促进

7) investigation

A. 考验 B. 考察 C. 调查 D. 考证

8) reveal

A. 反映 B. 揭露 C. 揭发 D. 反对

9) greedy

A. 贪婪的 B. 小气的 C. 渴求的 D. 慷慨的

10) dominant

A. 少数的 B. 主要的 C. 多数的 D. 控制的

1)-5) _____

6)-10) _____

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