

Cohesion in literary and scientific texts
Kerbela university faculty of education department of english
By : Lecturer : Azhar Hassan Salumee 2013

reiteration in both scientific and literary texts. The study shows that such conclusions can be traced back to the writer's intention to use rather simple, comparative, and descriptive language in expressing rather complex topics presented in scientific texts. That is to say, the use of indirect and complex language makes the reader's task more difficult. Moreover, the frequent categories of each one help the writer elaborate, illustrate, compare, and even add new information and ideas to his/her reader. The paper starts with an introduction that acquaints the reader with the concept of cohesion and its two types : the grammatical and lexical cohesion. Then, an analysis and a statistic study of six essays are carried out that reflect the frequency of occurrence of both types of cohesion in these texts. Three scientific essays as well as three literary ones have been chosen for the purpose of analysis. The study ends with some conclusions resulted through the study.

Abstract

Cohesion refers to relations of meaning that exist within the text, and that defines it as a text. The detection of these meaning relations is important to its interpretation. These relations are achieved by the use of cohesive devices. This means that the presence or absence of these devices in a text helps to make a text coherent or incoherent respectively. This paper is a statistic study of two types of cohesion : the grammatical cohesion and lexical one in selected scientific and literary texts. Three scientific essays as well as three literary ones have been chosen for the purpose of analysis. The six essays are written by different British writers and most of them are taken from the Internet. The study aims at presenting data verifying the assumption that both lexical and grammatical cohesive devices are more frequent in use in scientific texts than those occurred in literary ones. Also, some categories in each type are more widely used than others such as conjunctions and

تحقيق تلك العلاقات باستخدام وسائط التجانس و هذا يعني أن وجود تلك الوسائط أو غيابها من النص يجعله متجانس أو غير متجانس على الترتيب .
العلاقة بالمعنى) في ثلاث نصوص علمية وأخرى أدبية ماخو اغلبها من الانترنت وقد

الخلاصة
يشير التجانس في النص إلى علاقات المعنى التي توجد فيه ، والتي تعرفه كنص فعلي وان تعقب تلك العلاقات مهم جدا في تفسيره . يتم أن البحث الحالي هو دراسة إحصائية لنوعي التجانس (الوسائط القوا عدية و الوسائط ذات

علاوة على ذلك فإن الاستخدام المتكرر لأقسام كل نوع من تلك الوسائط يجعل الكاتب يتوسع ، يوضح، يقارن و حتى يضيف أفكار و معلومات جديدة للقارئ . يبدأ البحث بالمقدمة و التي تعرف القارئ بفكرة التجانس و نوعية (الوسائط القوا عدية و ذات العلاقة بالمعنى) ، ثم تم عمل تحليل و دراسة إحصائية لسنة نصوص و التي تعكس الاستخدام المتكرر لنوعي التجانس فيها . تم اختبار ثلاث نصوص علمية و ثلاث أخرى أدبية لغرض التحليل و ينتهي البحث ببعض النتائج التي تم التوصل إليها من خلال تحليل تلك النصوص .

and this enables to recognize the cohesion of a text. It occurs when the interpretation of one element in discourse is dependent on that of another. The one presupposes the other in the sense that it cannot be effectively decoded except by recourse to it.

Leech (1992: 93) argues that cohesion is sometimes distinguished from coherence. Coherence refers to the way a text hang together in a mental level : the level of the writer's intention and reader's understanding. He (ibid) adds that cohesion refers to the grammar and lexis which are used to bring coherence. Mathews (2007 : 62) points out that coherence is used semi-technically to refer to the way in which the context of connected speech or a text hangs together as distinct from that of random assemblenes of sentence, especially in the study of conversation. Mathews (ibid) adds that coherence is seen as the product of many different factors which

كتب تلك النصوص كتاب بريطانيين مختلفين . تهدف الدراسة إلى برهنة الفرضية التي تنص إلى (يظهر استخدام كلا النوعين من الوسائط في النصوص العلمية أكثر من وجودها في الأدبية " و تستخدم الأقسام الفرعية من هذين النوعين " التكرار و أدوات الربط " أيضا بكثرة في تلك النصوص). تشير هذه الدراسة إلى إن هذه النتائج قد تعزى الى رغبة الكاتب نفسه لاستخدام لغة وصفية ، مقارنة و سهلة في التعبير عن المواضيع العلمية و التي هي نوعا ما دقيقة ، صعبة ومعقدة . أن استخدام اللغة الغير مباشرة و المعقدة في عرض المواضيع العلمية يجعل مهمة القارئ صعبة للغاية و

1-Introduction

A text is not a set of sentences each on some random topic, but the sentences and phrases of any sensible text tend to be about the same thing. That is to say, the text must have a quality of unity. This is the idea of cohesion which means that the sentences are put together to function as a whole

In any kind of text, it is the ties and connections that make texts more attractive or less convincing, i.e, coherent. (Conner, 1996: 49). Cohesion, as Finch(2000: 211) says: " signifies the surface ties which link sentences together ". It refers to relations of meaning that exist within the text, and defines it as a text. These relations are achieved by the use of cohesive devices. This means that the presence or absence of these devices in a text helps to make a text coherent or incoherent respectively. Widdowson (2007 : 45) points out that the term 'cohesion' refers to the connections that are linguistically signaled like those between a pronoun and a previous noun phrase

the present study aims to answer the following questions :-

1- Do all categories of grammatical cohesion and lexical one occur in both scientific and literary texts ?

2- Are lexical and grammatical cohesive devices more frequent in use in scientific texts than those occurred in literary texts ? why ?

3- Which category of both grammatical and lexical cohesion is more widely used than others ? why ?

So, it is hypothesized in this study that both types of cohesion (grammatical and lexical) are more widely used in scientific texts than those occurred in literary texts. Also, conjunctive markers, being a category of grammatical devices, are more highly used in both scientific and literary texts. In addition, reiteration, a category of lexical cohesion , is more widely used than the other category (collocation).

To achieve the aims of this study, the researcher follows the following steps:-

1- Explaining the concept of cohesion and its two types : grammatical and lexical.

2- Showing the frequency of occurrence of both grammatical and lexical cohesion through static study in three scientific texts written by different British writers and taken from the Internet.

3- Identifying the frequency of occurrence of both lexical and grammatical cohesion in three literary texts written by different writers and taken from the Internet and books.

are combined to make every paragraph, every sentence and every phrase contribute to the meaning of whole piece.

Cohesion, according to Farrokhpey (1999 : 15), is like other semantic relations which is expressed through the stratal organization of language. Language can be explained as multiple coding system comprising three levels of coding, the semantic (meanings), the lexico grammatical (forms) and the phonological and orthographic (expressions).

Meanings are realized as forms, and forms are realized in turn as expressions. The guiding principle in language is that the more general meanings are expressed through grammar and the more specific meanings through vocabulary. Cohesive relations fit into the same pattern. That is to say, cohesion is expressed partly through grammar and partly through the vocabulary. We can refer therefore to grammatical

cohesion and lexical one. Cohesion can be systemized by classifying it into small number of distinct categories : reference, substitution, ellipsis, conjunction, and lexical cohesion. Each of these categories is represented in the text by particular features such as repetition, omissions, occurrences of certain words and conjunctions (ibid).

Both grammatical and lexical cohesion are expected to be present in any type of text whether it is scientific or literary. However, no one can determine which one is more frequent in use than the other. Thus,

(The Disability Right Commission Leaflet, 2000)

ere, the personal pronoun 'them' refers to the same referent as the noun 'disabled people' did. Endophora avoids unnecessary repetition which makes the text seem over-explicit, it sounds as if the writer is assuming that readers will not understand unless it is all spelt out. It gives more information than it needed, as all readers would be able to make the connection between the pronoun and the phrase that it links with, if their short term memory is functioning normally.

2.1.2. Substitution

Mathews (2007: 384) describes it as a replacement, in the process of analyzing a language, of one unit or sequence of units by another. So, it is a grammatical relation; a relation in the wording rather than in the meaning. In English the substitute may function as a noun, as a verb, or as a clause. To these correspond the three types of substitution, nominal, verbal and clausal. Let us consider the following examples :-

1. A: Did you call your father ?
B: I did (called my father).

2. A: Do you want to stay ? B: I do (want to stay).

2.1.3. Ellipsis

Andrew ford(2004:449) states that ellipsis is a process by which an expression is omitted in a certain context as it is possible to leave out words or phrases without repeating them. what is essential in ellipsis is that some sentences are omitted from the surface structure of text, but they are still understood. Hamer (2004:

4- Comparing between the two texts (scientific and literary) in connection with the occurrence of lexical and grammatical cohesion devices.

5- Analyzing the results obtained with some drawn diagrams that illustrate the frequency of occurrence of grammatical and lexical cohesion in both types of texts.

6- Concluding which type of cohesion is more frequent in use than the other in each type of texts and showing the reasons behind that.

2- Types of Cohesion

Cohesive ties are the demonstration of semantic relations that form the basis for cohesion between the messages of a text. Such cohesive ties can be classified into two types :-

2.1. The Grammatical Cohesion

Grammatical cohesion involves four categories. These are stated as follows :

2.1.1. Reference

It is the act of using referring expressions to refer to referents in the context. When there is no previous mention of the referent in the text, we call it exophoric reference dependent on the context outside the text for its meaning, (McCarthy, 1999: 35). When we refer to something inside the text, we call it endophoric reference. Let us take this example :

We have been established by an Act of Parliament

as an independent body to eliminate discriminations against disabled people and to rescuer equal opportunity for them.

sense, these elements perform the role of connectives between one unit and another which has already been introduced. Farrokhpey (1999: 282) has identified four types of conjunctive meanings :-

A.

Additive : It is a text forming component of the semantic system. In general, the relation is, therefore, a semantic one. Halliday and Hassan (1976: 8) in turn divide the additive type into :

1. Simple such *as, and, nor, or, ...etc.*
2. Complex such as, *inaddition, alternatively, ...etc.*
3. Complex (de-emphatic)such as, *bytheway, incidentally, ...etc.*
4. Comparative such as, *bycontrast, similarly, ...etc.*
5. Exemplificatory such as, *forinstance, and forexample.*

B.

Appositive or Adversative : This relation has the meaning contrary to the expectation. This expectation is either derived from the context of what is being said or from the relation that can be expressed by communicative process. For example *however, but, ...etc.*

C.

Causal : Notions such as reason , result, and purpose are expressed by this relation. The elements used to express this relations are : *So, if, forthisreason , ...etc.*

D.

Temporal : This is a relation of sequence in successive sentences. One sentence is in sequence to the

24) defines it as words that are deliberately left out of a sentence when the meaning is still clear. Starkey (2004: 50) points out that on some occasions, ellipsis is used instead of substitution for the sake of conciseness. Redford (2004: 449) explains that ellipsis is a process by which an expression is omitted in the sense that its phonetic feature is deleted and so unpronounced in sentence like (I will do it, if you will do it). We can omit the second occurrence of (do it) to avoid repetition (ibid).

2.1.4. Conjunction

Crystal (1985: 66) indicates that conjunctions are terms used in grammatical classification of words or morphemes to refer to expressions that link linguistic units. According to Halliday (1985: 325), these elements stand in a particular way to encode semantic relations which are referred to as conjunction for example(but) as a conjunction in (He came but didn't stay). Conjunction is rather different in nature from the other cohesive relations, from both reference, on the one hand, and substitution and ellipsis on the other. It is not simply an anaphoric relation (Wikipedia, 2006: 34). These are explicit makers of connective relations. They have the function of the realization of cohesion, and therefore, they are text forming agencies (ibid). Quirk etal (1985: 632) refer to these elements as a class of adverbials used by the speakers to express " his assessment of how he views the connection between two linguistic units ". In this

murmuring: 'Don't they smell beautiful!' Her mother gave a short laugh 'No', she said, 'not to me'. It was chrysanthemum when I married,¹

him and chrysanthemums when you were born, and the first time they ever brought him home drunk, he'd got brown chrysanthemums in his button hole '. (Lawrence, 1981).

Here, the repeated 'chrysanthemums' have the effect of pounding through the text and showing how they have been repeated and an welcome feature of the mother's life. So, while substitution and ellipsis avoid repetition, the lexical repetition exploits it for stylistic effect.

B. Synonyms

Instead of repeating the exact same word, a speaker or writer can use another word that means the same or almost the same. This is a synonyms. Here, we are back to avoiding repetition. Raphael (1995: 9) presents the following example :

" Accordingly, I took leave and turned to the ascent of the peak. The climb is perfectly easy ".

The words (ascent) and (climb) do not have exactly the same meaning. But, in this example, they refer to the same thing or idea. So, they are synonyms.

C. Super ordinates

In order to observe the lexical cohesion device of super ordinates , let us go back to O dour of Chrysanthemums and continue with the story :

The candle-light glittered on the lousier-glasses, on the two vases

other in time. In addition, the presupposing sentence may be temporally cohesive not because it stands in particular time relation to the presupposed sentence, but it indicates the terminal of some process or series of processes. Thus, this meaning does not involve only sequence relation , but also conclusive and summary relation. The elements used to indicate this relation are; *thenfinally*,...etc

2.2. Lexical Cohesion

Cohesion is maintained not only by grammatical cohesion but also by lexical cohesion. Hoey (1991: 21) insists on the importance of lexical patterning and believes that much of coherence as well as cohesion of a text is created by lexical ties of individual words with each other. It includes reiteration and collocation.

2.2.1. Reiteration

It is a form of lexical cohesion which involves the repetition of a lexical item at one end of the scale, the use of a general word to refer back to a lexical item, at the other end of a scale, and number of things in between the use of synonym or near synonym. (Andrewford, 2004: 349). Accordingly, reiteration includes the following subcategories :

A. Repetition

Of all the lexical cohesion devices the most common form is repetition, which is simply repeated words or word-phrases, threading through the text. Take this example from D. H. Lawrence's short story O dour of Chrysanthemums :

The child put the pale chrysanthemums to her lips,

information in themselves; they mostly depend on the co-text for their meaning, so are used when hearers and readers can identify what is being referred to from the rest of the text. Like pronouns, substitutions, ellipsis, synonyms and superordinates, they avoid repetition and give just the amount of information as is necessary. (<http://www.slideshare.net/cupidlucid/cohesion>).

A general noun as a cohesive function is always accompanied by the reference item "the". For example :

1. A: "Didn't anyone make it clear they expected the minister to resign" ?

B: "They did. But it seems to have made no impression on the man".

2. A: "Can you tell me where to stay in Geneva?"

B: I've never been to the place".

2.2.2. Collocation

It is a relation within syntactic unit between individual lexical elements, for example (my computer hates me). In this sentence "computer" collocates with "me". It is used especially where words specifically or habitually go together. (Mathews, 2007: 93). The following diagram summarizes what both types of cohesion consist of :

that held some of the pink Chrysanthemums, and on the dark mahogany. There was a cold, deathly smell of chrysanthemums in the room. Elizabeth stood looking at the flowers .

(Lawrence, 1981).

Here again there is repetition of "chrysanthemums", but then they are referred to with the words "the flowers". This is not a synonym of "chrysanthemum", it is a more general term which is known as a superordinate an umbrella term that includes 'pansies', 'tulips', 'roses',...etc. This is another way of avoiding repetition and still referring to the referent with a noun. Lawrence could have used a personal pronoun in endophoric reference instead and said ' Elizabeth stood looking at them ', although this might have given them less prominence, and he does want them at the centre of his story.

D. General Words

The last form of lexical cohesion is the general words. These can be general nouns, as in 'thing', 'stuff', 'place', 'person', 'women', and 'men', or general verbs, as in 'do' and 'happen'. In any way, the general word is a higher level superordinate : it is the umbrella term that can cover almost every thing. General nouns and verbs do not carry much

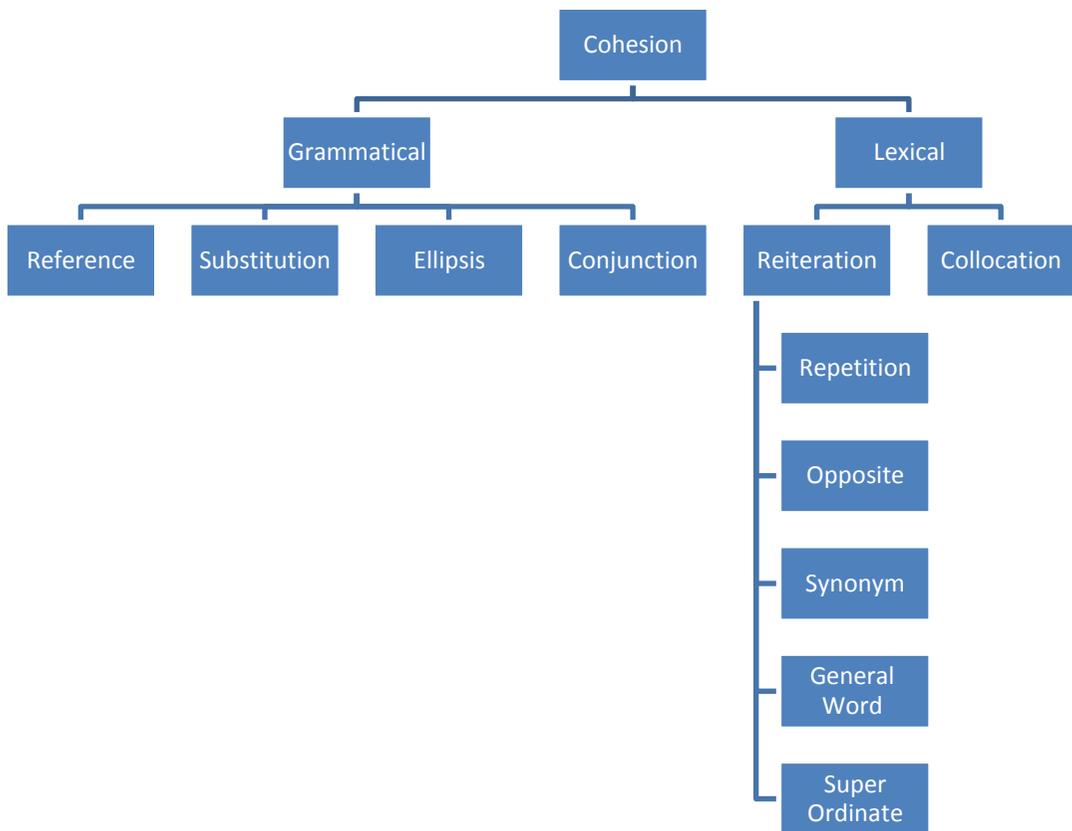


Diagram (1) : Types of Cohesion

3. Analysis of Result and Discussion

Table (1) below shows the frequency of occurrence of both grammatical and lexical cohesion in two types of texts : scientific and literary .

Cohesive Devices	Literary Texts		Scientific Texts		
	Frequency	Relative Frequency	Frequency	Relative Frequency	
Grammatical Cohesion Reference	324	%79	391	%95.36	
	62	%15.36	20	%4.87	
	4	%0.7	3	%0.73	
	27	%6.58	12	%2.92	
Substitution Ellipsis	230	%56	356	%86.82	
Lexical Cohesion Reiteration	86	%20.97	124	%24	
	Repetition	49	%11.25	68	%13.2
	Synonyms	13	%3.17	26	%5.04
	Opposites	8	%10.95	16	%3.10
	General Words	5	%1.21	5	%0.97
	Super ordinates	1	%0.24	Zero	%0
	Collocation	10	%2.43	9	%1.74
Total	410		210		

in literary texts (3) and scientific texts (3) .

That is to say, the writer tends to convey his/her message more through forms (grammar) rather than through lexis (meaning) since the latter is rather more difficult than the first. The second reason is that grammatical devices such as ellipsis, substitution,...etc help to make the

Table (1): Frequency of occurrence of grammatical and lexical cohesion

Table (1) shows that grammatical devices like conjunctions, ellipsis, ...etc are more frequent in use (715) than the lexical ones (210) in both literary and scientific texts. This may be related to two reasons. The first is that grammatical devices, in general, are easier in use than lexical ones.

scientific texts, like those of economy, biology, ...etc, writers deal with rather complex topics. So, they tend to convey their messages by using somehow a simple way that really express their idea and the best way to achieve this aim is the use of devices such as conjunctions, references opposites, synonyms, ...etc since they really help the writer

literary ones, are rather accurate and complex. So, the writers cannot explain such accurate ideas without using fixed expressions (vocabulary) which is impossible to be substituted by others.

text shorter. This means that writers can avoid repetition by using those grammatical devices. In addition, grammatical devices in scientific texts specifically are more widely used (%95. 36) than those occurred in literary texts (%79). The same can be said about lexical devices. That is, i.e, scientific (%24) and (%20.22) in literary texts. This may be due to the type of the text itself. That is, in elaborate, explain, and even compare between two completely different ideas. Moreover, lexical devices in scientific texts are more widely used than those occurred in literary texts. This can be traced back to the fact that scientific topics, compared with

Table (2) below illustrates that in scientific texts the conjunction markers, being a category of grammatical devices, are more widely used (356) than those occurred in literary texts (230) .

Conjunction	Literary Texts		Scientific Texts	
	Frequency	Relative Frequency	Frequency	Relative Frequency
Additive	171	%74	274	%76.96
Causal	14	%6.8	10	%2.80
Contrastive	23	%10	50	%14.04
Temporal	22	%9.56	22	%6.17
Total	230		356	

Table (2) frequency of occurrence of conjunctive markers in literary and scientific texts.

Furthermore, additive conjunctives such as 'and', 'also', ...etc being one of conjunctions are more frequent in use than other types of conjunctions like contrastive, temporal, ...etc. in both scientific texts

(%76: 96) and literary ones (%74). Also, it is noticed that causal conjunctives both literary texts (%10) and scientific ones (%14) . However, they are higher in use than the other two types of grammatical devices: Temporal and causal , i.e, (%9.55) in

are the least in use in both : the literary texts (%6.8) and the scientific ones (%2.80) . Moreover, contrastive conjunctions are less in use than additive conjunctives in

additive devices such as 'and', 'also', ...etc. (2) The writers can add new information to the readers by using such devices.

Concerning table (3), it identifies the lexical cohesion in both texts : the scientific and literary

literary texts and (%6. 7) in scientific ones. Additive conjunctions especially are highly used in scientific and literary texts because they achieve the following aims : (1) Writers can elaborate in any subject (literary or scientific) by using

Table (3) : Frequency of occurrence of reiteration in scientific and literary texts.

Lexical Cohesion	Literary Texts		Scientific Texts	
	Frequency	Relative Frequency	Frequency	Relative Frequency
Reiteration				
Repetition	49	%64.47	68	%59.13
Synonymy	13	%17.10	26	%22.60
Opposites	8	%10.5	16	%13.9
General Words	5	%6.37	5	%4.34
Super ordination	1	%1.31	Zero	%0

Table (3) above shows that reiteration which includes repetition , synonym, ...etc phrase and even the words which are similar relatively in meaning.

Conclusion

The study leads to the following conclusions on the theoretical level :-

1. Both grammatical cohesive devices and lexical ones help to make continuity in any type of text. That is, the absence of such devices leads to incoherent text.

2. Ellipsis, substitution and reference are used to avoid repetition. However, repetition is regarded d as a lexical device which also results in coherent text.

. is more widely used than the second category of lexical cohesion i.e, collocation although both of them create a coherent text. Reiteration has high frequency in both scientific texts (115) out of (515) and (76) out of (410) in literary texts. Collocation, in comparison with reiteration, has frequency of (10) and (9) in both literary and scientific texts respectively. Also, repetition, being a category of reiteration, is more widely used than other categories in both literary (%64. 47) and scientific texts (%59. 13). This may occur as a result of the writer's intention, in general, to repeat the same word or

*Farrokhpey , M. (1999). Fundamental Concepts in Linguistics . Tehran : Sokhan.

* Finch, T. (2000). Cohesion and Coherence. London : Longman.

* Halliday, M. 1985. An Introduction to Functional Grammar. London: Edward Arnold.

*Halliday ,M., and Hassan,R. 1976. Cohesion in English. London : Longman UK Group Limited.

*Hamer, B.2004. Studies in Discourse Analysis. London : long man group.

Hoey S. 1999. Textual Cohesion. London : Macmillan publisher, Ltd.*

* Lawrence, D. H. Odour of Chrysanthemums.1981.London : Macmillan Education limited .

Leech, J. 1992. Linguistics . London : Longman.

* Mathews, P. H. Oxford Concise Dictionary of Linguistics . Oxford: oxford university press.

McCarthy,M. 1999. Discourse Analysis for Language Teachers . Cambridge : cambridge university press.

*Quirk, R. Greenbaum,S.,Leech, h, G., and Svartvik, J. 1985. A comprehensive Grammar of the English Language. London : Longman.

*Raphael,S. 1995. Text and Discourse Analysis . T. J. International ltd, padstow, cornwall : London..

Redford, S. 2004. Concept of Cohesion. London : Longman.

Starkey , M. 2004. Cohesion in English.London : Longman.

The Disability Rights Commission Leaflet , 2000.

On the practical level, the study results in the following conclusions :-

1. Both grammatical and lexical devices are more frequent in use in scientific texts than those occurred in literary ones.

2. In both texts (scientific and literary) the grammatical cohesive devices are more widely used than lexical ones.

3. Conjunctive markers in scientific and literary texts are higher in use than other types of grammatical cohesion.

4. Whether the text is scientific or literary the additive conjunctives like *and'also'*,...etc. are more frequent in use than other kinds of conjunction (temporal, oppositives,...etc.).

5. Reiteration occurs more than collocation in both scientific and literary texts although both of them achieve lexical cohesion in the text.

6. Repetition, being one of lexical cohesive devices, is higher in use than other categories although repetition may be accused of making a boring text.

References

* Andrewford, T. 2004 . Text and Discourse Analysis . T. J. International Ltd, Pad stow, Cornwall : London.

* Conner, S. 1996. Discourse Analysis . Oxford : Oxford University Press.

* Crystal, D. 1985. Cambridge Encyclopedia of Language . London : Longman.

Widdowson, H. G. 2007. Discourse Analysis . Oxford :OxfordUniversity press.

*Wikipedia . 2006. Linguistics.

* <http://www.Slideshare.net/cupidlucid/> cohesion.

