Employment of Manifest Intertextuality in Geology and Applied Linguistics Ph.D. Theses: A Social Constructionist Perspective

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Abstract

Manifest intertextuality is a concomitant aspect of all academic discourse which is by necessity a creative blend of the words of the writer of the text and his predecessors, with the objective of integrating the current knowledge within the accredited facts of the discipline. Hence, this study explores the overall use of intertextual links in a corpus of (8) Geology and (8) Applied Linguistics Ph.D theses by Sudanese students. It was revealed that intertextuality employment is dictated by worldviews of disciplinary clusters (the hard-soft axis) and, thus, there were overt variations in the use of this feature between the two fields. The abundance of intertextual ties in Applied Linguistics and their dearth in Geology are due to the interdisciplinary nature of Applied Linguistics where dispersed strands have to be woven together into a coherent fabric to build a shared ethos between writer and reader. In contrast, the objective, linear and cumulative nature of Geology largely omits such a need, as a great deal of procedural expertise is presupposed. Also, while Geology (a hard science) relied on human – evacuated, phenomena – prominent non -integral citations, Applied linguistics (a social science) tended to bring human agency to the limelight through integral citations. Also, nominalization in citation structures in Geology was meant to identify the terminological report –based nature of the field while there was an emphasis in Applied Linguistics on textual constructs and verbal processes.

Keywords: Intertextuality, Ph.D. Theses, Niche, Citation, Discipline, Genre Analysis

1. Introduction

Intertexuality was originally proposed by Bakhtin (1981, 1986) in literary criticism to advocate the view that novelistic language builds on prior models, rather than attempt to create completely new discourse as romantic theorists would suggest. However, conceptions of intertextuality were later broadened to refer the ways in which all written and spoken texts draw on, respond to, or echo other texts (Johnstone, 2002: 156). This can take the explicit form of quotation or implicit form of utilizing generic conventions. The two types were designated *manifest* and *constitutive* intertextuality by Fairclough (1992:217). It is manifest intertextuality that is our concern here, and it refers to the use of previous references in scholarly texts. It is a fundamental aspect of all academic writing and Johns (1997:63) identifies citation as the most obvious and discussed aspect of intertextuality. Indeed, Swales and Feak (2004) go so far as to claim that it is **the** (original emphasis) defining feature of academic prose.

The justifications for the ubiquitous use of this aspect in the academia can be explained on social constructionist grounds (though bibliometricians have their own account that is less relevant to us here). For many sociologists of knowledge (e.g.: Kuhn, 1970; Gilbert, 1977; Rorty, 1981; Bruffee, 1986; Bizzel, 1992; Berkenkotter and Huckin, 1995; Atkinson, 1996; Hyland, 2000, 2002) we live in a post-Enlightenment age in which the rigid scientific positivism that rely solely on the primacy of objective facts is now rejected. It is currently held that scientific knowledge is as much rhetorically as objectively constructed. Thus, the arguments given by Craig and Watson in their *The Double Helix (*1968*)* on the structure of the DNA are no less crucial than their laboratory work in convincing the scientific community of the validity of their propositions. Likewise, all scholars must seek the consensus of the discourse community for their claims to be ratified. This consensus entails, accoirding to Whitely (2000), invoking the accredited heritage in the discipline, and this is most easily accessed through drawing intertextual links to build *a discursive collaboration* (Rose, 2002). Moreover, by paying a debt to a precedent, writers not only show allegiance to the discourse community, but also reveal a *niche* (Swales, 1990) within the established body of charted knowledge that they wish to occupy through their innovation.

The study of intertextuality in English for Academic Purposes (also known as citation analysis) coincided with the rise of genre analysis which is the study of structural and linguistic regularities of particular text types and the role they play within the discourse community (St John, 1998) It is believed that rhetorical and linguistic patterns in academic texts vary depending on the different epistemological conceptions of knowledge within disciplinary domains . In fact, features such as *moves* were extensively studied in research articles and were found to differ in hard and soft fields (Bhatia, 1993, 2001, Swales, 1993, Johns 1997, 2003; Ozturk, 2007). Other features including intertextuality were analyzed in research articles (Hyland, 2000, 2002, Samraj, 2008) to the same effect. However, longer genres such as Ph.D theses have only fairly recently been begun to be investigated. (e.g. Bunton, 2002. Riddley 2000; Charles 2006) due to the sheer length of texts, but corpus linguistics tools have made it feasible. Indeed, analysis of generic features in students writing is important because of pedagogical considerations and the fact that far more academic

writing is produced for assessment purposes than for publication purposes (Nesi, 2012). The present study investigates the variations arising from employing intertextuality, within different disciplinary contexts of the Ph.D genre which aims to give a testimony to the examiners of the eligibility of candidates for the award of a degree. A pioneering study of citation in Ph.D genre was that of Thompson (2005) who found ample variations in the use of this features between Agricultural Botany (a hard field) and Food Economics (a soft one). This paper will analyze overall aspects of intertextuality and their integration within a corpus of Geology and Applied linguistics to verify the above findings.

2. Methodology

This study purports to investigate the overall tendencies in the use of manifest intertextuality in a contrastive corpus composed of 16 Ph.D theses, 8 from the discipline of Geology and 8 from Applied Linguistics. Geology was chosen as it is a hard science and since it has featured little within genre studies (Swales, 2001: 51). On the other hand, Applied Linguistics is a social science field whose citation habits have received some attention (e.g. Pickard , 1995, Hyland , 2000, Samraj, 2008) but only within the research article and there is a need to extend research to longer genres The theses were produced by Sudanese graduate students at the University of Khartoum (Sudan's most prestigious university) between (2001-2011). The objective of this study is threefold, namely to verify if overall differences exist in the density of intertextuality in the two fields and the manner in which intertextuality is cast (e.g: summary, generalization or quotation). The second goal is to offer explanations for these variations, if any, based on the epistemological requirements of the two fields belonging to two different disciplinary categorizations. Finally, the paper investigates the two broad division of citations, namely *non-integral* and *integral* functions (Swales: 1990. 141).

To extract prior references, corpus tools (Wordsmith Programme) were employed to concordance and quantify examples of intertexuality in the 16 theses. This typically takes the form of an author(s) followed by a year and can be accompanied by reporting verb. Here is an example to illustrate manifest intertextuality.

Swales' (1990) book proposed genre as a typology of academic texts.

Typically, intertextuality takes two broad forms. They include *integral citations* appears within the sentence in the form of a noun followed by year of publication incorporated into the sentence as an integral part of the syntax of the sentence and will be separated by brackets e.g

Geology (GL) (1) :

Andrew (1948) distinguishes groups, of ingeiuous ultra- base rocks

Applied linguistics (AL) (3):

Akman (2000) believed that anthropological linguistics has underlined the context of discourse.

The second option is *non-integral* citations where the citation is separated from the sentence by brackets and plays no explicit grammatical role in the sentence e.g.

Gl (7): *In ophialite complexes , sulphicle bodies are situated within the pillow lava sequences*

(Sillitoes, 1973)

Non-integral or "fact –prominent citation " (Weissberg and Buker, 1990) were further divided using Thompson's (2001, 2005) fine-grained taxonomy into the following five types

1- *Source.* The citation tells the reader where the information or proposition comes from. It functions as an attribution e.g

Gl (2) : *The solution of equation 3.2 is only valid if it is less than 0-01 (Jacob and Riddler,1996)*

AL(7)*: Institutional forms are vulnerable to socio-cultural change (Byran , 1994) .*

2- *Origin:* It attributes the proposition to an agent by indicating the originator of a concept or technique.

AL (5): *Consideration of contextual factors leads to what is called Functional Grammar (Halliday, 1985, 1994)*

3- *Reference:* The citation refers readers to other source for more information.

GL (2*): A number of scholars relate the formation of karabland to prolonged erosion processes (see Bergisma, 19470; FAO, 1973, 1977; Leidke, 1948, Bocco, 1991)*

4- *Exemplification:* The citation provides examples of studies on the area .e.g.

AL (4): *The concept of collocation has been extensively studied in applied linguistics (e.g, Mitchel, 1971; Lowie, 1979; Sinclair, 1991, Nessellhauf, 2005)*

5- *Identification:* The citation identifies an agent in the sentence explicitly or implicitly .e.g.

GL (3): *It has been stressed (Ries et al, 1985) that hydrothermal factors alter volcanogenic deposits.*

As for *integral* citations, they can take four positions, namely, *subject* as in the example from AL(5):

Piaget (1928) described the sensory period in children.

Non-subject position, e.g: GL (7):

Analyses of igneous balsat rocks have been conducted by Goldman (1983) and El-Nadi (1989).

Adjunct structure, as in Gl (3):

According to Boyle (1996), four types of gossans deposits can be distinguished.

Finally*, naming (possessive) function,* as in AL (6):

Grice's (1975) conversational maxims include quantity, quality and manner.

Once instances of referencing were pinpointed, they were counted and expressed as aggregate figures per 1000 words, which allows the comparability of texts. Average figures and percentages are elucidated through reference to disciplinary knowledge domains.

3. Analysis and Discussion

Below are total word counts for each chapter in the eight Geology (henceforth GL) theses and the chapters of the eight Applied Linguistics (henceforth AL) theses.

3.1 Density of Intertextual Links

The intertextuality figures in the two fields below corroborate the informal characterization the well-defined ends of the spectrum of knowledge, the hard and the soft domains.

As expected, Applied Linguistics employs many more Intertextual links per 1000 words, almost as twice as Geology (14.15 to 8.52). The differences are explained in the sociology of knowledge expressed in Becher and Trowler's (2001) distinction between *urban* congested natural fields like Geology and the more leisurely social *rural* ones like Applied Linguistics. An important aspect of former is their incremental cumulative growth that fulfills a tiny research niche (Swales, 1990) on which a vast body of knowledge has converged, a phenomenon metaphorically likened by Hyland (2000) to the lava of a volcano. We can illustrates this by citing the topic of GL (2) which studies the upper cretaceous sediment of Omdurman Formation, while GL (4) explores the late protoerzoic polymetallic sulphide bodies of exhalative origin under hydrothermal alteration. Within this narrow context, intertextuality is a means of integrating new findings into the current knowledge as a supporting testimony. As the established presupposed framework of knowledge is great, the need for an extensive system of reference to prior research is diminished. The highly standardized knowledge assumptions are shown by the extensive reference to few giant figures in the Geology of Sudan throughout the eight theses. For instance, Andrew (1970) is quoted 465 times; Whiteman (1971, 1974) 311 times ; Almond (1977) 266 times and Vail (1978, 1988) 452 times. The figures are the more striking in the light of the total word counts of the these and the general paucity of intertextuality, indicating the dominance of "certain background sources".

Turning to Applied Linguistics, the above predictability in Geology is unattainable and the epistemological picture is altogether different. Here, research follows much more recursive paths and old topics are cited, revisited but never concluded. This is probably the reason that, the Prague School of Linguistics of the 1920s has been revived by Halliday and is the basis of much functionalism in the last two decades. On the other hand, Chomskyan Generative Linguistics though critiqued as early as 1971 by Hymes is still discussed, as proved by Radford's (2005) minimalist version of the theory. The explanation is simple: since all theories on language are speculations, we can never be absolutely certain about any of them and they are all falsifiable. It follows from this argument that knowledge in Applied Linguistics is reiterative rather than cumulative as in Geology. This variation explains the greater need to resort to intertextuality.

Moreover, while Geology is a science on its own right concerned with the study of the solid and liquid matter that constitutes the Earth and is composed of such branches as physical Geology, Quaternary, Glaciology, Geomorphology and Hydrogeology (http://en. Wikipaedia.org/wiki/geology), Applied Linguistics is an interdisciplinary field studying the relationship between language, social structures and human agents (www. .gc.ca/bth.ph.d). It borrows from neighboring areas such as Philosophy. Literary Criticism, Anthropology and Information Technology. To illustrate this, let us take AL (1) which employs corpus tools in investigate collocation use by Sudanese learners, while AL (3) draws on the anthropological concept of politeness. AL (3) employs the tools of computer-assisted learning to enhance oral

competence and, finally, AL (7) is inspired by the discipline of logic to explore pragmatic inference in journalistic texts. As these areas are discrete and lack consensus, each thesis has to elaborate its own context through intertextuality markers to create its own niche and to build a common horizon with its diverse readership. This unpredictability explains the relative absence of the great figures of linguistics such as De Saussure (mentioned only 14 times in the eighth theses); Chomsky (117 times 70 of which in one thesis on communicative competence) and Halliday (86 times, 59 of which in a thesis on use of functional approaches to teaching tenses).

3.2 Presentation of Intertextuality

The manner writers choose to incorporate others' work into their argument, ranging from extended discussion to mandatory acknowledgement, can have an important impact upon the expression of social relations and here, again, disciplinary variations manifest themselves. The choices in which reference portion duplicates the original material include brief quotes of few words; considerable wording set in indented blocks; summary as an abbreviated statement from a single source, or a generalization, which is a statement of convergence from two or more sources. Below are the percentages for the four types in the two corpora as follows:

Clearly, in the two disciplines there is a preference for summary (58% for GL and 71% for AL).

Here are two examples:

GL *(6) Putzer (1962) described the gold prospects of Arabic area.*

AL *(3): Widdowson (1978) stressed the need for a change from sentence to textlinguistics.*

As for generalization, it comes second (39% for GL and 16% for AL) as in the following examples:

GL (4): *Onibophiolites constitute the most important complex in the Red Sea Region (Fetches, 1987 ; Heisson et al, 1998.)*

AL.(4): *Morose (1988), Ochota (2001) and North (2005) have proved the effectiveness of SFL to teaching English tenses.*

While summary and generalization allow writers the flexibility to interpret data in their own terms, the greater reliance of Applied Linguistics on summary (individualization) reminds us of the dispersion of knowledge in this field. On the hand, the predilection Geology has for generalization (multiple authorship) is indicative of a greater knowledge consensus and common perspectives.

As for quotation, Applied Linguistics is far more likely to retain the original wording of the source (13% of all referencing compared to 3% for Geology). Here the choices are between short parenthetical quotes as follows:

GL (4): It was suggested by Abdullatif (1992) that the term *Nubian Sandstone* should be

abolished as a stratigraphical term.

AL(5): Bazzelia and Damiano (1990) draw a distinction between *understanding*, *misunderstanding* and *non-understanding*.

The second type is enclosing larger discoursal stretches as follows:

GL (6): Judd (1957) defined landform as *a portion of earth surface different in structural shape from neighboring areas*.

AL (3): Crystal (2003) describes fluency as follows: *if you are fluent, you don't have to think about speaking the languages; the language comes to you.*

It is to be noted that the Geology corpus is unusual for including so many quotes and block quotations (direct quotation did not occur in any scientific paper in Hyland's 2000 corpus). But even so, the discursive nature of Applied Linguistics is apparent in the greater number of quotations and in the quality of quotations in that almost all of Geology quotes are of terminological nature, while Applied Linguistics ascribes verbatim expressions to writers that can be as long as half a page.

3.3 Non-Integral vs. Integral Citations

Comparing the two diagrams below for concentration of the two citation types, it is apparent that Geology has a preference for non-integral over integral citations, and that Applied Linguistics behaves in the opposite manner:

The behavior of Geology accords well with the statistics of Hyland's (2000) study, where 90% of Physics citations were non-integrals in his corpus of research articles, and with Thompson's (2005) corpus of Agricultural Botany P.h.D. theses (67%). On the other hand, the dominance of integrals in Applied Linguistics diverges from Hyland's (2000) statistics for research articles in this field, where non-integrals constituted 66% of all references, but is consistent with Pickard's (1995) specialized study on this branch where integrals comprised 58% of all citations.

The implications for the division in our statistics are fairly clear. The prevalence of non-integrals in Geology may be attributed to the disciplinary disposition of suppressing actions of human agents in constructing knowledge, implying that the authority of the individual is subordinate to the authority of scientific procedure. Hence, within this positivistic paradigm, human agency is downplayed, while the description of the phenomenon is highlighted .This can be contrasted with Applied Linguistics where the greater acknowledgement of authors through integral citations allows for a stronger role for the human part in the construction of knowledge. This is emphasized by Scollon's (1994) argument that citing others is not a simple act of attribution but also a means of constructing an authorial self. In the light of this, Applied Linguistics stresses individual creative figures and by foregrounding those whom researchers engage with rather that their research a professional persona is established.

3.4 Non-Integral Citation

Of the five non-integral categories, the overwhelming choice is for *source* for both corpora, though to varying degrees. It seems that *source* is the unmarked citation function in this category, relating as it does to the simple attribution of information to their sources.

An investigation of the two histographs reveal that in Geology the ratio of *source* is high (an average of round 6 per 1000 words) and is justified by the preponderance of non-integral citations and exceeding the other four types by a wide margin. It is also significant that the second most frequent category is *identification* which is a variant of *source*, denoting knowledge consensus.

Turning to Applied Linguistics, one is struck not only by the low profile of *source* citations (almost as half as that of Geology) but also by the comparative prominence of the other four types. The more even distribution of non-integral citations in Applied Linguistics can be ascribed to the "more disputational and argumentative nature of writing in humanities and social sciences" (Hyland, 2000) which contrasts with the more transactional and factual mode of knowledge in natural disciplines. Consequently, Block and Chi (1995) reveal that most citations in the hard fields belong to "background knowledge" but there are almost as many types of "critical" and "support' citations in soft fields. This is supported by Howard's (2008) study of citation motivations in Computer Sciences and Sociology. Like the present study, the top-ranking category in both was "referral" of information to sources, but Sociology employed many more instances of "exemplification", "positioning" support' and "application" citation functions.

3.5 Integral Citations

By analysis of the distribution of the four types, of integral citations, it is revealed that Geology has only 23% of integrals in non-subject positions as compared to 41% in subject positions (this contradicts statistics in Hyland's (2000) study where, for example, 66% of citations in Physics occupy the non-subject position).

Applied Linguistic fulfills our expectations in that 60% of all integrals occupy the subject as compared to 15% in non-subject positions (Hyland has figures of 58% subject to 27% non-subject in his Applied Linguistics corpus).Hence, statistics in this field assign the textual prominence that is typical in a social science.

As a comparison of adjunct structures does not yield meaningful results, let us turn to the *naming* citation in the two fields. While the percentages are approximate, this type functions in contrasting ways in the two fields. It is the custom in Geology to name equations and techniques after their originators. However, in consistency with scientific ideology, this does not directly acknowledge the role of humans in creating knowledge, but serves both as gate-keeping strategy and a methodological code for the discourse community to appreciate and disseminate report-based mode of knowledge .Instances from the GL corpus can illustrate this:

GL (2*)*: The Schaeller diagram (1952)

GL (3): *The Bologmov method (1956)*

GL (7): Calculations from Andrew's (1948) formula

GL (5): The standard Gibb's (1982) energy ratio

GL (6): Toulman (1966), isopleth content equation

This can be contrasted with Applied Linguistics where nominal constellations relate to discursive entities and where knowledge is more fluid and revolves round verbal and cognitive processes linked to human beings. Five examples will illustrate this:

AL (3): Widdowson's (1978) communicative model.

AL (7):Canale and Swain's (1980) framework.

AL (2): Sinclair and Coulthard's (1975) sequences of discourse

AL (1): Lewis's (1997) proposition for a lexical syllabus.

AL (5): Crystal's (2003) view on the global status of English.

Moreover, while in Geology "naming" serves an identification purposes, the prominent figures in Applied Linguistics are presented in evaluative language highlighting contributions, as provided by the few examples below:

AL (5): De Saussure's (1916) epoch –making book laid the foundations, of modern Linguistics.

AL (4) : Hyme's (1971) important critique of Chomskyan competence .

AL (3): Firthian Linguistics (1957) had a deep impact on later functionalism.

AL (8): Chomsky's (1965) famous distinction between "competence" and "performance".

4. Conclusion

This has been only a tentative study of referential intertextuality in a contrastive corpus in geology (a natural science) and Applied Linguistics (a social field) PhD theses. The concern was the overall density, presentation and integration of references within the two discipline. While it would be presumptuous to draw too many generalizations on account of the colossal size of the corpora, certain tendencies have been discerned in the study. In line with many previous genre studies, it has been revealed that the use of this indispensable academic feature is linked to disciplinary conglomerations (the soft-hard axis) and that each field dictates its own rhetorical requirements. Hence, the overt variations in the employment of this feature is explicable through the linear, depersonalized and objective *Weltanschauung* of Geology compared with the fluid, human-imbued and discursive nature of Applied Linguistics. The present study has only dealt with general tenors in the use of intertextuality, and, thus in-depth analyses need to be carried out in the manner of realization of this intricate aspect in an interdisciplinary framework.

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2. Sami Hashim Mohamed Mohmoud (2004). *The Hydrogeology of Jebel Marra Area with Special Emphasis on Water Quality Western Sudan.*

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Appendices

Appendix A

Table 1. Total Word Counts in the Geology and Applied Linguistics Corpora by chapter

	Total	C1	C2	C3	C4	C5	C6	C7	C8	C9
GL1	25027	1787	2218	6811	2131	7617	3361	1102		
GL2	25984	6320	4254	3040	5623	5623				
GL3	23741	2428	3187	3841	4875	2095	3304	2561	1450	
GL4	36085	2306	1892	1495	7024	2767	6175	4410	2414	2598
GL5	9403	1334	1397	1418	2112	2010	284			
GL6	21503	1802	2335	3755	1696	6457	667	1147	2198	1446
GL7	10239	1708	1681	2381	3191	1278				
GL8	30683	2138	379	5112	4266	1514	3135	4166	2562	5968
total	182.665									

Table 2. Total Word Counts in the Geology and Applied Linguistics Corpora by chapter

	Total	C1	C2	C3	C4	C5	C6
AL1	34586	2661	10544	6279	3954	9499	1646
AL2	58785	3354	10702	17217	6851	18116	2545
AL3	46158	2725	18639	9780	6393	4352	4269
AL4	28153	1170	12004	8334	4633	2003	
AL5	34650	1363	17591	6583	1785	5334	1994
AL6	44384	1896	19368	6978	1672	12532	1983
AL7	33173	2705	9101	6431	917	12893	1252
AL8	48279	3120	4029	4219	4024	23716	4071
Total	328.168						

Tables 3. Density of Intertextuality in the Geology and Applied Linguistics Corpora

GL1	GL2	GL3	GL4	GL5	GL6	GL7	GL8	AVERAGE
6.55	6.64	9.18	12.5	5.42	10.09	6.34	7.75	8.25

Tables 4. Density of Intertextuality in the Geology and Applied Linguistics Corpora

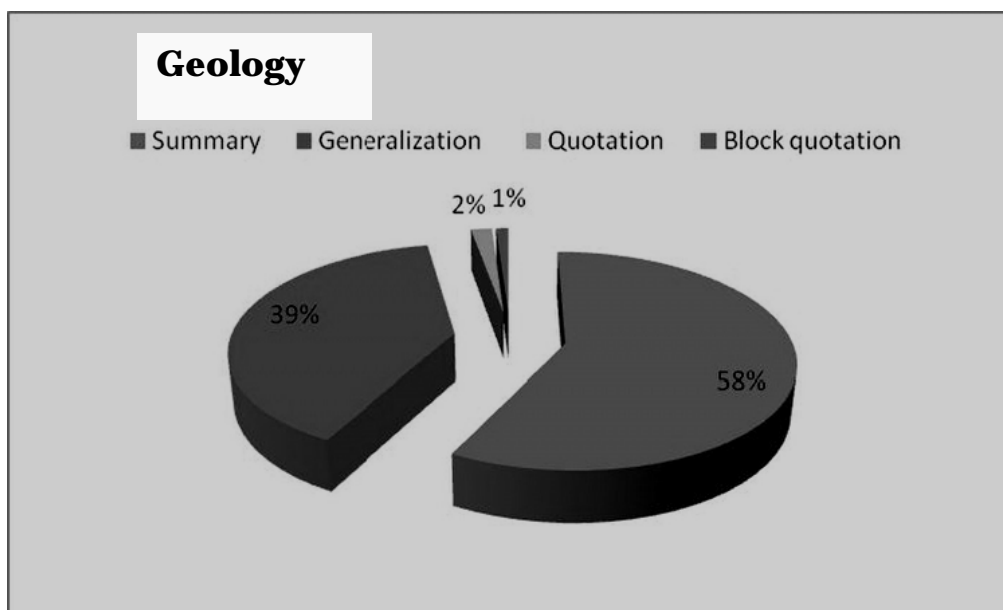| AL1	AL2	AL3	AL4	AL5	AL6	AL7	AL8	AVERAGE
10.96	16.99	18.36	12.27	13.40	17.33	16.47	18.45	14.15

Appendix B.

Figure 1. Presentation of Intertextuality in the Geology Corpus
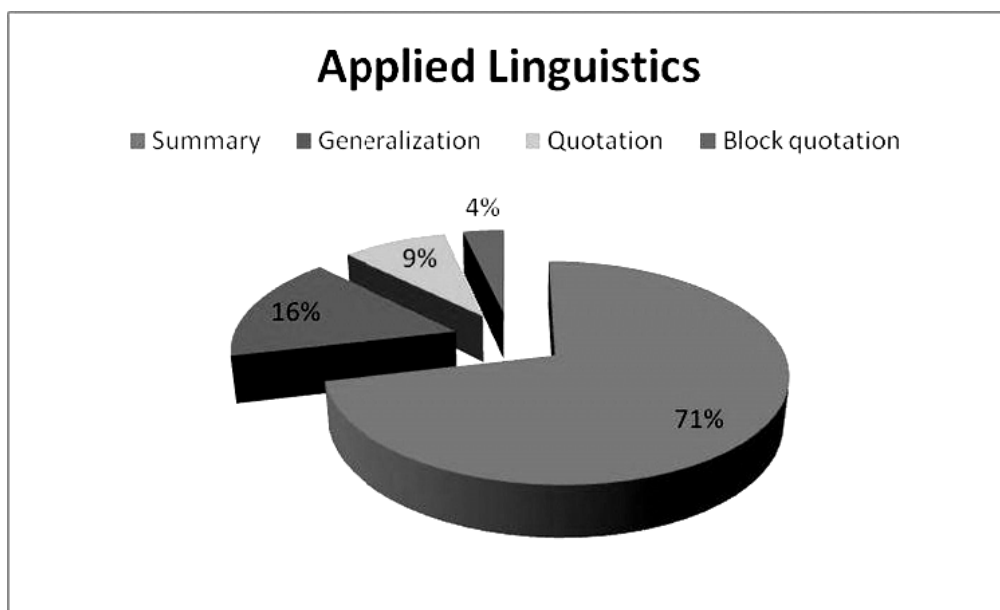

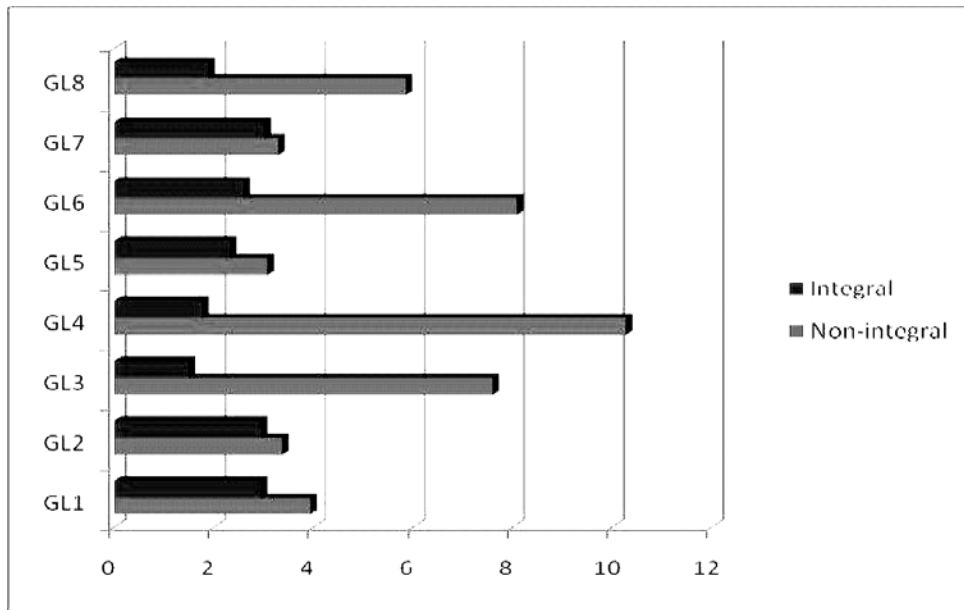Figure 2. Presentation of Intertextuality in the Applied Linguistics Corpus

Figure 3. Integral and Non-Integral Citations in the Geology Corpus
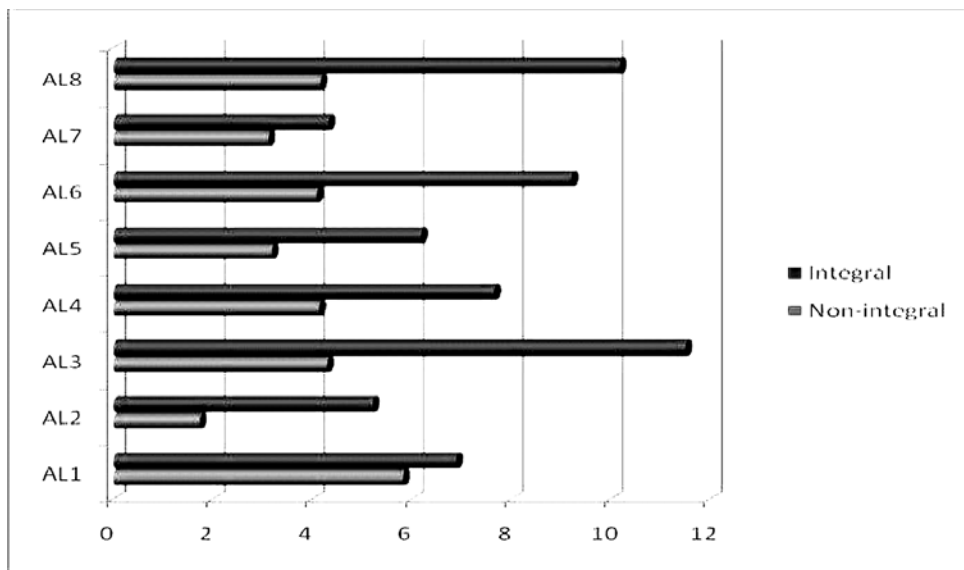

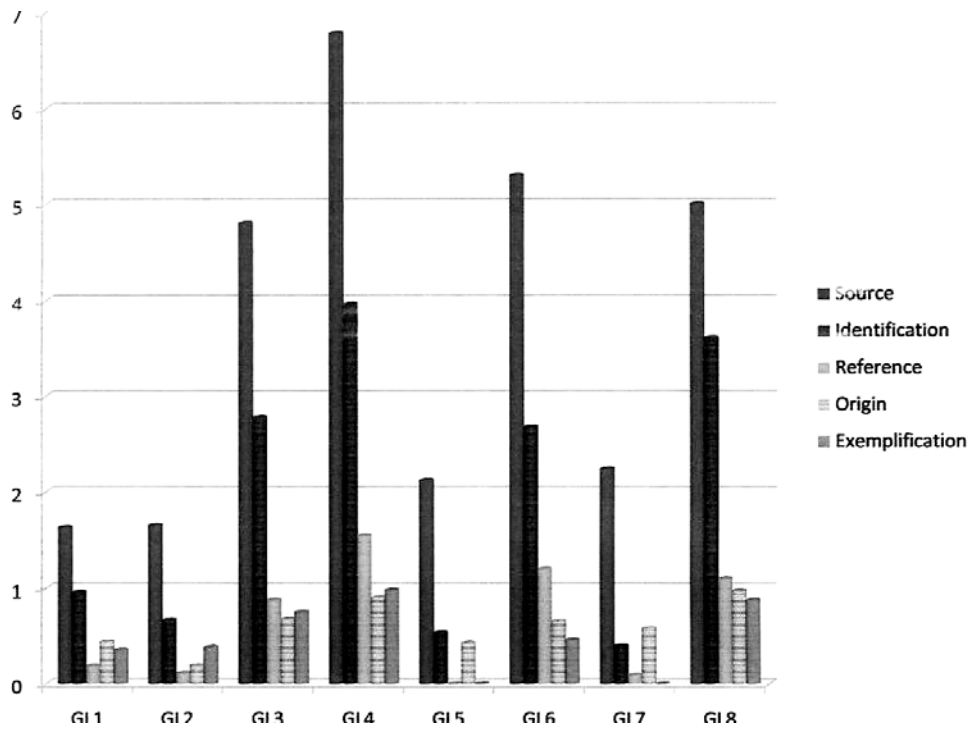Figure 4. Integral and Non-Integral Citations in the Applied Linguistics Corpus

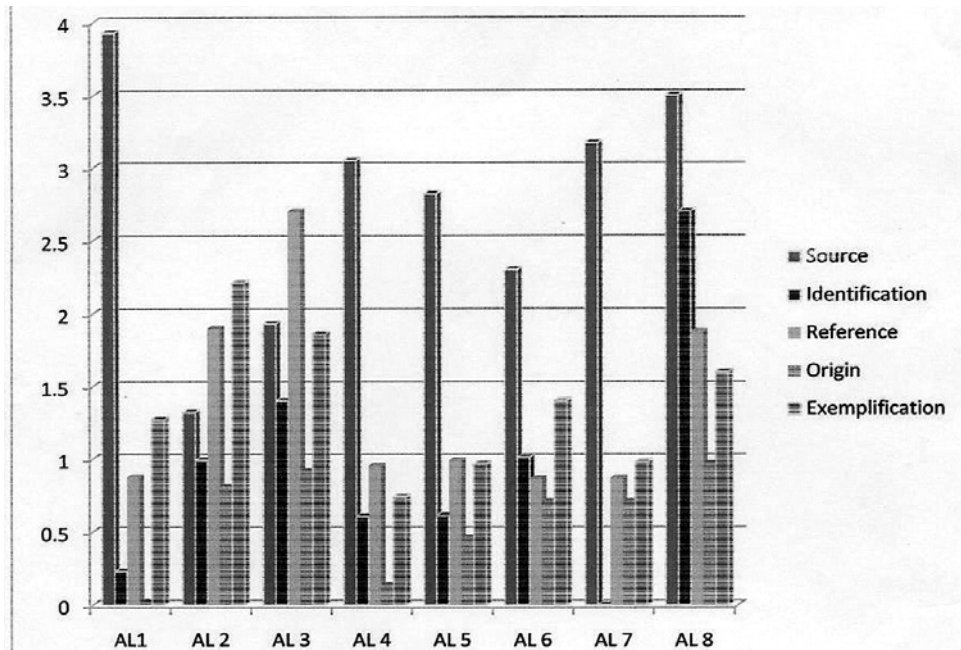Figure 5. types of Non-integral Citations in the Geology Corpus

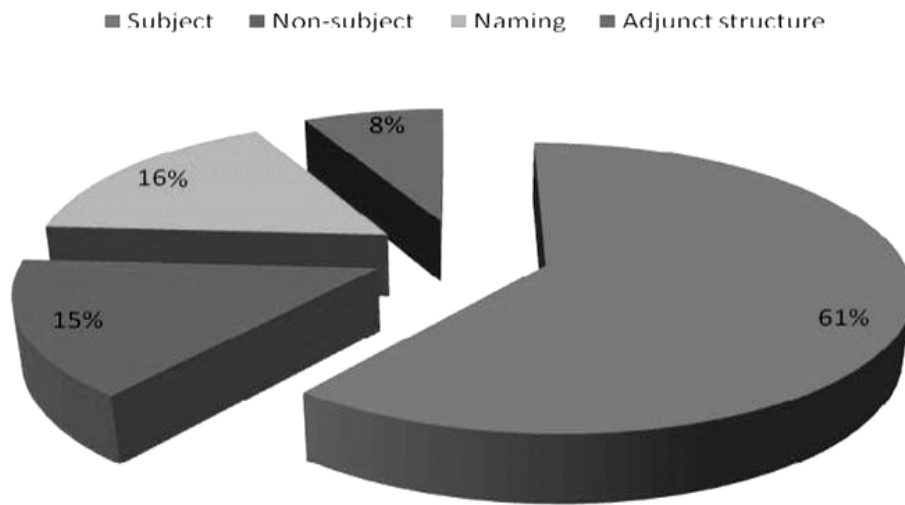Figure 6. types of Non-integral Citations in the Applied Linguistics Corpus

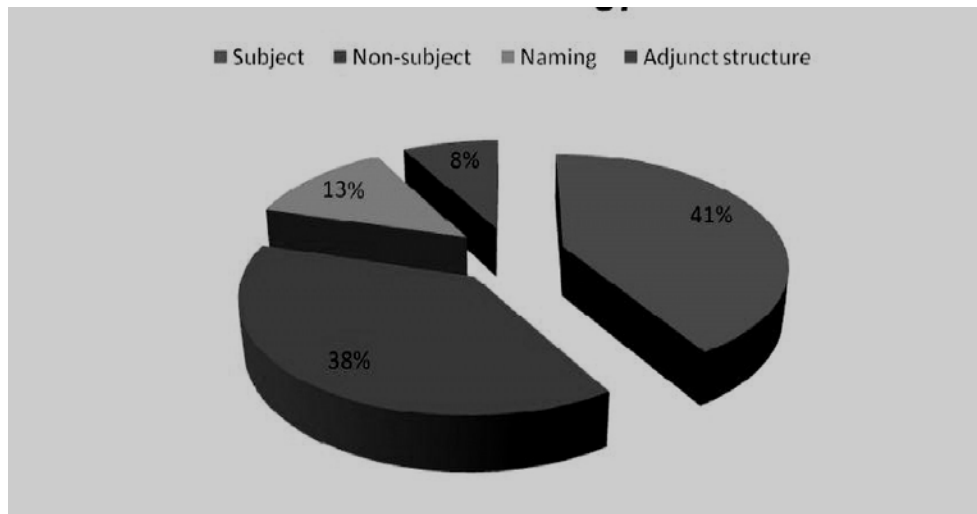Figure 7. percentage of integral Citations in the Geology Corpus

Figure 8. percentage of integral Citations in the applied linguistics Corpus

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