

Citation Practices in Selected Science and Humanities Dissertations: Implications for Teaching

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Abstract The citation feature provides justification for arguments and demonstrates the novelty of one's position in research writing. It shows how a piece of research arises out of, and is grounded in the current state of disciplinary knowledge. As such, research supervisors encourage the candidates under their guidance to make citations especially when writing literature reviews and discussion sections of their dissertations. This requirement plunges many a student in confusion on how to go about this integral undertaking without written citation norms in their disciplines. The question that emerges is: On which benchmarks should dissertation writers base their citations when writing dissertations in their disciplines? Put in other words, on which benchmarks should research supervisors base their judgement on the quality of citations in their students' dissertations? The aim of this paper therefore is to uncover citation practices in selected Humanities and Science dissertations from Kenyan public universities. The paper analyses the citation types and reporting verbs of choice employed in Humanities dissertations and compares them with those in the Science dissertations. Consequently, the paper proposes a set of citation norms that can inform the writing of the Humanities and Sciences dissertation and suggests a genre-based approach for raising students' consciousness to the citation norms during the drafting stage of their dissertations.

Keywords: *citation, integral and non-integral citations, norms, communities of practice*

1. Introduction

In [1], citation is considered to be: 'the attribution of propositional content to a source outside the author of the reporting article and marked by the presence of some signal of attribution.' The feature arguably plays a key role in academic writing. For instance, it contributes to the social context of persuasion as it can both provide justification for arguments and demonstrate the novelty of one's position [2,3]. According to [4] citation shows how a piece of research arises out of, and is grounded in the current state of disciplinary knowledge and thus constitutes an overt manifestation of ongoing 'conversation of the discipline'. Reference [4] adds that citation enables the writer to acknowledge or take issue with the contributions of other researchers, display knowledge of the field and to establish his/her own academic authority and credibility. In other words, citation analysis could prove an important tool for researchers and scholars of particular scholarly topics or controversies in their attempts to establish the origin and distribution of particular ideas and discoveries, and to trace major networks of influence, collaboration and dependence [5]. Accordingly, research writers will find information on citation analysis helpful as they explore the citation patterns available to them in their disciplines. This will enable them to make citations that fulfil the expected communicative purposes in their disciplines.

However, despite the crucial role of citation in academic writing, novice writers have been found to experience difficulties in learning to cite appropriately [4], [6]. According to [3], 'while the literature recognises the importance of the citation feature, we know little about its relative importance, rhetorical functions or realisations in different disciplines'. Indeed, much of the material on citation offered to English for Academic Purposes (EAP) students is considered inadequate [4,7,8]. One question is therefore inevitable, 'on which benchmarks should dissertation writers base their citations when preparing the text in their disciplines? Put in other words, on which benchmarks should research supervisors base their judgement on the quality of citations in their students' dissertations? How do dissertation supervisors manage these unwritten norms in the course of their supervision?'

Following this background, perhaps a promising means of addressing the concern is through the investigation of citation practices in different disciplinary cultures with a view to coming up with those typical features that are acceptable in those cultures. This paper therefore uncovers citation norms in selected Humanities and Science dissertations from Kenyan Public Universities. The paper analyses the citation types and reporting verbs of choice employed in Humanities dissertations and compares them with those in the Science dissertations. Uncovering the types of citations will reveal to the dissertation writing students the field of options available and corresponding communicative purposes.

The importance of reporting verbs has been underscored in the literature. Reference [3] for example

argues that the selection of an appropriate reporting verb allows writers to intrude into the discourse to signal an assessment of the evidential status of the reported proposition and demonstrate their commitment, neutrality, or distance from it. This paper also advocates for citation consciousness-raising activities for graduate students who are in the process of writing their dissertations. This is consistent with the view that applied linguists analyse citers' practices to show empirical differences in disciplinary rhetoric and help teachers of English for Research Purposes (ERP) to teach citation in advanced writing courses [9].

The analysis presented in this paper is based on citation analysis as it is manifested in applied linguistics. This line of analysis differs from the ones adopted in history & sociology of science and information science. Reference [10] identifies three separate disciplines with traditions of citation analysis as the following table indicates.

Table 1. Disciplines with Traditions of Citation Analysis

Field	Applied Linguistics	History and Sociology of Science	Information Science
Sample Specialties	Discourse analysis	Science communication studies	Bibliometrics
	English for research purposes	Studies of scientific discourse	Information retrieval
	Genre analysis	Social constructivism	Information needs and uses

Source: [10]

According to Table 1, the sample specialities of applied linguistics namely, discourse analysis, English for research purposes, and genre analysis, are the three pillars on which this paper is based. Since, the paper involves an analysis of the citation practices in dissertations drawn from two disciplinary cultures it has links to discourse analysis. Secondly, given that the paper investigates the interplay between the citation types and the rhetorical purposes they fulfil, it has a link to the speciality of English for research purposes. Thirdly, the chapter involves an analysis of how writers cite in their disciplines and why they cite in the way they do, connecting it to genre analysis.

2. Method

Six dissertations produced in the year 2004 were selected from six public universities in Kenya. Three were Humanities dissertations in English coded as AEN, sociology (ASC), and history (AHT) while the rest were Master of Science in chemistry (SCH), agricultural engineering (SAE), and botany (SBT) respectively. The dissertations were closely read in order to identify and sort

out all in-text citations. This process was guided a schema by [1] based on the following criterial features:

- A reporting/reported clause structure and reporting verb.
- *According to* as an adjunct of reporting.
- Metatextual terms such as *research, studies, scholars, researchers, and hypothesis*, in the theme position and functioning as subject, which sometimes signals a citation.
- Citation details such as, year of publication and page numbers in parentheses.
- Named mention of researcher in the reporting clause.

All the citations were further classified into integral and non-integral citations according to a framework in [8,11] models. Reporting verbs used to make citations were also identified and sorted out into four verb groups according to an approach suggested by [4]. These verb groups are: ARGUE, THINK, SHOW, and FIND. Reference [4] notes that names of verb groups are printed in small capitals because they are lexemes. Where a verb occurred in more than one group, the context was examined in order to determine the appropriate category. Since citations must be made in a particular tense, typical tense types were classified into three high frequency forms namely, the *past, present, and present perfect* [11]. However, data revealed few cases of a fourth category, the past perfect, and as such it was included in the study.

After the elicitation of the textual data from the six dissertations, twelve supervisors who had supervised the texts were interviewed. The purpose for the interview was to determine their degree of awareness for any citation norms in their disciplines and how they were managing these benchmarks (if available) in the course of their supervision.

3. Results and Discussion

3.1. Citation Patterns in Humanities and Science Dissertations

A manual count of all in-text citations revealed that Science dissertations had a lower frequency of citations than Humanities dissertations. In the study corpora, Dissertation SAE had the fewest in-text citations at 75 followed by SBT at 91. Dissertation SCH had the highest number of occurrences among the MSc dissertations at 102. Humanities dissertations, on the other hand, had higher distributions of in-text citations than Science dissertations. Dissertation AHT had the highest number of citations at 257 followed by ASC at 153. The least number of in-text citations in the Humanities dissertations was in Dissertation AEN with 134 citations. This information is summarised in Table 2.

Table 2. Number of Citations in the Study Corpora

Science Dissertations			Humanities Dissertations		
	Number of Citations	Freq. (%)		Number of Citations	Freq. (%)
SCH	102	12.3	AEN	134	18.5
SBT	91	10.9	ASC	153	18.4
SAE	75	9	AHT	257	30.9
Total	268	32.2	Total	564	67.8

N = 832

The statistics in Table 2 indicate that Humanities dissertations had 67.8 percent of all citations with Science dissertations only recording about half at 32.2 percent. The quantitative results show clear disciplinary differences. The contrasting trends may be supported by several observations. One obvious point is that the length of texts in the two disciplinary cultures was markedly different: the Science dissertations ranged between 74 and 137 pages while the humanities dissertations ranged from 115 to 202 pages. Given the relatively voluminous nature of the humanities dissertations, one would expect a higher incidence of citations. Secondly, almost 30% of space in Science dissertations was covered by diagrams, tables and figures.

However, it can be added that the figures in Table 2 broadly support the informal characterisation that ‘soft’

disciplines tend to employ more citations than ‘hard’ ones [3]. This trend suggests characteristic variations in structures of knowledge and intellectual inquiry practices of disciplinary communities. It appears that the discursive nature of knowledge building in the humanities and social sciences demands that writers bring on board arguments and counter-arguments from previous literature to ‘create a research space’ for their own studies. But in the sciences, it is the empirical observations yielding from rigorous experimental procedures, and not references to previous research, that count [12].

All the citations identified in the dissertations were sorted out according to the rhetorical division of the dissertations as summarised in Table 3:

Table 3. Distribution of In-text Citations per Rhetorical Section

Section	Science Dissertations					Humanities Dissertations				
	SCH	SBT	SAE	Σ	%	AEN	ASC	AHT	Σ	%
	Number of Occurrences					Number of Occurrences				
Front Matter	-	-	-	-	-	5	-	-	5	0.6
Introduction	9	16	11	36	4.33	44	33	11	88	10.58
Literature review	71	34	49	154	18.51	56	49	34	139	16.71
Method	14	22	6	42	5.05	-	12	-	12	1.44
Results	7	19	9	35	4.21	41	45	211	297	35.70
Conclusion	1	-	-	1	0.12	8	14	1	23	2.76

N = 832

According to Table 3, all the dissertations in the study’s corpora had no in-text citations in the *Front matter* except Dissertation AEN which had only five cases (all in the *Abstract*), leading to the conclusion that citations are not desirable in the *Front matter* rhetorical section. In fact, all the twelve supervisors interviewed noted that citations should be avoided in the *Front matter*. Table 3 also indicates that in the *Introduction*, Humanities dissertations comprised more in-text citations at 88 (10.58%) than the Science dissertations which recorded only 36 (4.33%) citations. The main communicative purpose of the *Introduction* is to provide information to help readers understand the study reported in the dissertation. Most of the citations in this rhetorical section occurred in the part outlining the background to the study where an account is given on the trends in research that lead to the study problem. Two respondents emphasised the foregrounding role of citations in the *Introduction* by noting:

(a) Citations ground the concepts under investigation.

(b) Citations foreground the statement of the problem and provide a background to the study.

In the *Literature review*, Science dissertations had slightly more in-text citations at 18.51% compared to Humanities dissertations with 16.71%. The near equal distribution of the feature in this section indicates that the communicative purposes of the *Literature review* are shared between both disciplinary cultures. This was reflected in the views expressed by some of my respondents:

(c) Citations reveal the knowledge gaps.

(d) Citations help establish the hiatus that is being investigated.

(e) Citations contextualise the study.

Table 3 also shows that in *Materials and methods* and/or *Methodology* section, Science dissertations had significantly more citations at 5.05% than only 1.44% in the Humanities dissertations. It can be argued from this trend that the research procedures used in the Science

domain tend to be documented and appear to be referred to by prospective researchers. As a respondent from the Science disciplinary culture pointed out, ‘citations are used to support the methods followed and to define research tools.’ On the other hand, the minimal preference for citations in this rhetorical section among Humanities dissertations reflects the explorative and narrative nature of research in the Humanities disciplinary culture. In fact, all the six respondents from the Humanities disciplinary culture reported that citations are not desired in the *Methodology*.

In the *Results and discussion*, Humanities dissertations employed significantly more citations than Science dissertations at 35.70% against 4.21% respectively. This trend suggests that knowledge construction in the Humanities disciplinary culture tends to be argumentative and therefore demands comparing and contrasting one’s findings with those in previous works. As a respondent from the Humanities disciplinary culture pointed out:

(f) Citations are allowed only when they relate information in the literature with the researcher’s findings.

The few citations in the Science disciplinary culture portray the Science disciplines as non-discursive and/or factual.

Patterns in the *Conclusion and recommendations* section show that citations were generally few in both disciplinary cultures. This concluding rhetorical section serves the following communicative purposes: restating the purpose of the study, presenting a summary of the findings, indicating the implications of the study, and suggesting areas for further research. The few citations in *Conclusions and recommendations* section occurred where the writers stated the implications of their studies. To realise this purpose, they made comparisons between their own recommendations and those by previous researchers. Nevertheless, all respondents were unanimous that citations should be avoided in this rhetorical section. There is, therefore, an apparent disconnect between what

the supervisors would want in their students' dissertations and what the students actually produce.

It may be noted that citations were high in the *Introduction*, *Literature review*, and the *Results and discussion* rhetorical sections in both the Humanities and Science dissertations. With reference to the Create a Research Space (CARS) model of article introductions [11], it is expected that citations will occur in rhetorical sections 1 (establishing a territory) and 2 (establishing a niche) and rhetorical section 3 (occupying the niche). In rhetorical section 1, step 3 (reviewing items of previous literature); rhetorical section 2, step 1 (counter-claiming) and step 3 (question-raising); and rhetorical section 3 step 2 (announcing principal findings), Swales argues that article authors need to relate 'what has been found' with 'who has found it'. To put it more specifically, Swales [11] notes, 'the author needs to provide a *specification* (in varying degrees of detail) of previous findings, an *attribution* to the research workers who published those results, and a *stance* towards the findings themselves'. It seems clear that rhetorical sections 1, 2, and 3 in the CARS model correspond to the *Introduction*, *Literature review*, and *Results and discussion* rhetorical sections in the present study respectively.

The figures in Table 3 show that there is considerable variation in citation practice between the different disciplines in the same disciplinary culture. It is possible to link this trend to personal preferences by writers in order to advance what [13] calls 'private intentions'.

This section has quantitatively analysed the occurrences of the citation feature in each discipline per disciplinary culture. In the next section, an analysis of the citations is presented according to integral and non-integral citation categories advanced by [8,11].

3.2. Non-Integral and Integral Citations

According to Swales [11], in a non-integral citation, the name of the researcher occurs either in parenthesis or is referred to elsewhere by a superscript number. An integral citation, on the other hand is one in which the name of the researcher occurs in the actual citing sentence as some sentence element. He states that integral citations may take one of four forms:

First, integral citations may show the name of the researcher as subject as Example 1 indicates.

(1) *Vertessy et al (1993)* classified the model into four; statistical, black box, lumped parameter and physically based models. (SAE)

In the example, *Vertessy et al (1993)* assume the role of grammatical subject.

Secondly, an integral citation can show the name of the researcher as a passive agent headed by the preposition *by* as Example 2 indicates:

(2) Galled roots with root knot nematodes were plucked from the soil and disease assessment done using root knot gall rating index used *by Giamalva et al (1960)* as described in section 3.2.5. (SBT)

In Example 2, the logical subject has been extra-posed to the end position of the independent clause where it becomes a passive agent *by Giamalva et al (1960)*.

Thirdly, an integral citation can show the name of the researcher as part of the expression *according to* which

[14] calls 'an adjunct of reporting'. This is reflected in example 3.

(3) The story in the novel, *according to Ogola (1995)* is not just one of its 'ancestresses', but a standard story of the lives of many African women. (AEN)

The last form of an integral citation is where the name of the researcher is shown as part of a possessive noun phrase, as Example 4 indicates:

(4) These findings closely tie with *Njoka's (1995) findings* that most of his residents' husbands had either primary level of education (39.6%) or secondary level of education (27.3%). (ASC)

In this example, the genitive *Njoka's* is part of the possessive noun phrase *Njoka's (1995) findings*.

Non-integral citations, on the other hand, do not include the researcher's name in the proposition but expresses it as a parenthesis occurring in the final position of a sentence. In Examples 5 (*Brown and Kerry, 1987*) is a parenthetical element that is non-integral to the proposition preceding it.

(5) Control of some nematodes can be obtained by manipulating planting dates to avoid their periods of peak activity (*Brown and Kerry, 1987*). (SBT)

Out of the twelve respondents in this study, only two attempted an explanation of the communicative purposes of integral and non-integral citations. However, their contributions were hazy and inconsistent with available literature. Regarding Integral citations, the following comments were made:

(g) An integral citation should have an acceptable communicative purpose.

(h) An integral citation makes it easier to refer to works cited for the reader.

In regard to non-integral citations, the respondents noted that:

(i) It must have an acceptable communicative purpose.

(j) It works as end notes. In my opinion, non-integral citations help to explain concepts and ideas that have been used by other scholars before.

An analysis of the distribution of integral and non-integral citations in the study corpus revealed that non-integral citations were more prominently used than integral citations in all rhetorical sections except *Conclusions and recommendations*. Table 4 provides the specific details.

The statistics in Table 4 indicate that Science dissertations did not record either the non-integral citations or the integral citations in the *Front matter* (the *Abstract*, in particular). In the Humanities dissertations, however, there were 3 (0.36%) non-integral and 2 (0.24%) integral citations. It is also noted that Humanities dissertations had a higher frequency of both integral and non-integral citations than Science dissertations in the *Introduction* rhetorical section. Accordingly, Humanities dissertations recorded 49 (5.89%) and 35 (4.21%) non-integral and integral citations respectively as compared to 33 (3.97%) non-integral and 3 (0.36%) integral citations in Science dissertations. The higher incidence of both types of citation finds justification in the communicative purpose of the *Introduction*. The section serves to indicate the context needed to understand the writer's current study. This observation is emphasised by [1,3] when they point out that explicit reference to prior literature is a substantial indication of a text's dependence on contextual knowledge and thus, a vital piece in the collaborative construction of

new knowledge between writers and readers. Consider Example 6 from this study's corpora:

Table 4. Non-integral and Integral Citations by Discipline

Section	Science Dissertations					Humanities Dissertations				
	SCH	SBT	SAE	Σ	%	AEN	ASC	AHT	Σ	%
	Number of Occurrences					Number of Occurrences				
Front Matter										
Integral	-	-	-	0	0.00	2	-	-	2	0.24
Non Integral	-	-	-	0	0.00	3	-	-	3	0.36
Introduction										
Integral	1	-	2	3	0.36	21	8	6	35	4.21
Non Integral	8	16	9	33	3.87	19	25	5	49	5.89
Literature review										
Integral	12	4	10	26	3.13	6	16	26	48	5.78
Non Integral	59	30	39	128	15.38	15	33	8	56	6.73
Method										
Integral	2	11	1	14	1.68	11	6	-	17	2.04
Non Integral	12	11	5	28	3.37	34	6	-	40	4.81
Results										
Integral	2	7	1	10	1.20	2	28	23	54	6.49
Non Integral	5	12	8	25	3.00	32	17	188	237	28.49
Conclusion										
Integral	-	-	-	0	0.00	5	9	1	15	1.80
Non Integral	1	-	-	1	0.12	3	5	-	8	0.96

N = 832

(6) Women remained appendages of men even after independence, and were therefore, to be represented by men in parliament (Kabaji, 1997). (AHT)

As Example 6 indicates, citation helps to define a specific context of knowledge or problem to which the current work is a contribution. Such citations are said to be evolutionary [10]. The citations indicate how the citing work grows out of the cited work rather than being an alternative to it. These views are reflected in [15] where it is argued that writers may use such citations as a way of building a platform of existing research through the judicious assembly of appropriate and relevant material. It is this kind of platform that enables the writer to assert new knowledge by adding to existing information.

It can also be noted in Table 4 that the *Literature review* had a very high frequency of non-integral citations as compared to integral citations among Science dissertations at 128 (15.38%) against 26 (3.13%) respectively. Humanities dissertations on the other hand, had near equal distributions of non-integral and integral citations at 56 (6.73%) and 48 (5.78%) respectively. This trend is a reflection of the patterns that emerge in the *Introduction* rhetorical section. It is apparent then that Science dissertations have a preference for non-integral citations. This observation corresponds to views expressed in [16] where it is argued that sciences are likely to use more non-integral citations while the humanities and social sciences are likely to use more integral citations. In a study based on dissertations drawn from agricultural botany and agricultural economics reference [16] notes:

In the agricultural botany dissertations, writers tend to focus on previous findings, or suggestions, rather than on the researchers that made the findings or suggestions. On the other hand, in agricultural economics dissertations, there is more attention paid to the individuals who have developed approaches, expressed equations, or who have articulated complex models and so they appear as actors in sentences [16].

Examples 7 and 8 illustrate non-integral and integral use respectively.

(7) To date, the structures have not been put up due to scarcity of resources, yet people continue to lose life and property (MENR, 1980). (SAE)

(8) Riugu (1987) observes that there is need for intensified agricultural production given declining land base and a rapidly growing population. (ASC)

Example 7 typifies citation practices in the sciences where prominence is on the proposition and not the author while, in example 8, prominence is placed on the author and not the proposition which is notably typical of citations in the humanities and social sciences.

Table 4 also indicates that there was considerable variation in the incidence of non-integral and integral citations between MA and Science dissertations in the *Materials and methods* and/or *Methodology* rhetorical section. Thus, whereas Humanities dissertations had 40 (4.81%) and 17 (2.04%) non-integral and integral citations, Science dissertations had 28 (3.37%) and 14 (1.68%) non-integral and integral citations respectively. It is notable, that the frequency of non-integral citations in Science dissertations has dropped in comparison to the *Literature review* section. However it is interesting to note that distributions of non-integral and integral citations in Humanities dissertations remain more balanced in the *Introduction*, *Literature review*, and *Materials and methods/Methodology* sections. Regarding the *Materials and methods/Methodology* rhetorical sections, one can argue that dissertation writers drew on integral and non-integral citations to assure the reader that the studies being reported were conducted in tune with documented procedures as reflected in examples 9 and 10 from this study's corpora:

(9) Root, leaf and seed plant extract were isolated in the laboratory using a modified method that was originally proposed by Meyer *et al* (1982) and later refined by McLaughlin *et al* (1991). (SBT) (Integral)

(10) The R2 value of 0.6 was selected based on previous calibrations done on the model (Guleid *et al.*, 2001). (SAE) (Non-integral)

Example 9 is a typical case of integral citations where the author is presented as an 'actor' while 10 is a characterisation of non-integral citations where information focus is on the proposition. The deduction, then, is that it is possible to exploit both integral and non-integral citation forms in giving insights into materials and methods adopted by previous researchers.

In the *Results and discussion* section, Table 4 indicates that Humanities dissertations had far more occurrences of both non-integral and integral citations than the Science dissertations. Thus, whereas Humanities dissertations had 237 (28.49%) non-integral citations, Science dissertations had 25 (3.00%). The same trend was noted in the distribution of integral citations. Accordingly, Humanities dissertations had 54 (6.49%) occurrences against 10 (1.20%) in Science dissertations. In this rhetorical section, writers from both disciplinary cultures utilised citations to support their findings as examples 11 and 12 indicate:

(11) Metal concentrations in soils from all sites were higher *compared to* the world mean concentrations (Bowen, 1979). (SCH)

(12) Strobel (1979) and Oduol (1992) *also observe* that some Kenyan communities assigned economic social political roles and positions to both men and women on the basis of gerontocracy. (AHT)

It may be deduced from examples 11 and 12 that dissertation writers would use previous research findings as focal points upon which variations and similarities of their own findings could be viewed. As the examples indicate, the support role of a citation is signalled by the italicised markers of support *compared to*, and *also observe*. The markers of support function to match compatibility between the cited previous research and the current one receiving the support. As the examples indicate, a study may be built on the foundations of the supporting study.

In the *Findings and discussion* rhetorical section, the data also revealed that dissertation writers can use citations to show how the citees make refutations of claims as examples 13 and 14 indicate:

(13) However, as Beven (1989) has pointed out, these models demand significant input data, which *is difficult to measure and time consuming*, making the models too costly to use. (SAE)

(14) Ombaka (1989) argues that the co-existence of two different value systems and ideological grids *presents a range of unique problems* to the resolution of the woman question. (AHT)

In examples 13 and 14, the expressions *is difficult to measure and time consuming* and *presents a range of unique problems* seem to challenge the validity of earlier claims. The citations that refute or challenge claims are called negative or refutational citations [10]. These are citations in which the citee overturns earlier work. Dissertation writers exploit such citations to advance their own studies. Thus, as may be noted from examples 13 and 14, negative citations do not necessarily indicate worthlessness; rather, they simply show controversy. This view is confirmed in [10] where it is noted:

the negative citers may themselves be wrong and the citees right. In any case, it is something of an achievement to have one's work noticed by others, even if negatively; work deemed substandard or negligible is seldom cited at all.

Indeed, examples 13 and 14 can reveal the disputational style of building an argument which [3] argues, is favoured by the Humanities. Such citations, he notes, allow writers to open a discursive space within which to either exploit their opposition to the reported message or to build on it.

It can be concluded that the use of citations in the *Findings and discussion* rhetorical section implies the dynamism of knowledge. Reference [17] points out that academic writers place value on citation which reflects the assumption that knowledge arises from a dynamic system of research, analysis and communication. The implication is that the academic world consists fundamentally of people researching, analysing, and communicating with each other.

One may therefore argue that the citation feature is being used by dissertation writers to persuade potential readers about their membership in the research community and to enhance the significance and acceptability of the arguments in the text. As [2,3,18,30] argue, citation is a process that involves locating the writer's claims within a wider disciplinary framework.

The *Conclusions and Recommendations* rhetorical section, according to Table 4 shows a dramatic fall in the number of integral and non-integral citations in relation to other sections. It may be observed that Humanities dissertations utilised more non-integral and integral citations at 8 (0.96%) and 15 (1.80%) while Science dissertations had only one (0.12%) non-integral citation and no integral citation. Most of these citations occurred in the element outlining the implications of the study, a point where academic writers indicate what the findings of their studies mean and how they may be used to tackle existing challenges as examples 15 and 16 show:

(15) They also reported that the cash advance is not only given for farm processes like planting, weeding, and harvesting, but also for such things as school fees and medical fees. This can be said to have improved the farmers' lives as these are things they could not afford earlier. (ASC)

(16) As Kabaji (1997) observes, the reality of the times has shown that it is no longer necessary for the society to be chained by the doctrines of past cultures and tradition sustained and nurtured by former colonial masters. (AHT)

Disciplinary cultural differences are seen in the frequency of integral and non-integral citations: Humanities dissertations drew on more integral and non-integral citations than Science dissertations in almost all the rhetorical sections. We may explain these differences with perceived differences in the ideology and epistemology between the two disciplinary cultures. According to [4,19], the construction of knowledge in the social sciences is 'personal', while that in the natural sciences is 'impersonal' and 'objective'. Thus, the use of integral citation with a human subject leads to prominence of the cited author [20] and this form typifies trends in humanities and social sciences.

Reference [11] offers an explanation for the influencing factors behind the choice of integral and non-integral citations. He notes that citation convention (numerical or author/date) may affect the choice between integral and non-integral forms and argues that numerical conventions predispose the writer to use non-integral citation. In my data, all the six dissertations adopted the author/date convention. Therefore, it would not be accurate to attribute the high incidence of non-integral citations to the citation convention used. Given that dissertation supervisors were also not sure of the distinction between integral and non-integral citations, it would seem likely that the choice of integral/non-integral citations was a

complex phenomenon. I propose that conventions in existing genres in a disciplinary culture and the demands of an individual study type play a part here. While this phenomenon can be investigated further, I suggest that the frequency of integral and non-integral citations be explained in line with the function of the citation types in the dissertation.

This section has presented the quantitative and qualitative analysis and discussion of integral and non-integral citation types used in Humanities and Science dissertations. It has emerged that non-integral citations were preferred to integral citations in both disciplinary cultures. In the next section, I look at the type and patterns characterising the use of reporting verbs in the study corpora.

3.3. Reporting Verbs

When making integral citations, the citee must use a reporting verb that matches the purpose for citing. Reference [3] notes that the selection of an appropriate reporting verb allows writers to intrude into the discourse to signal an assessment of the evidential status of the reported proposition and demonstrate their commitment, neutrality, or distance from it. In the study reported in this paper, the reporting verbs employed in the citations were identified and sorted out according to four verb groups suggested by [4]. These verb groups are: ARGUE, THINK, SHOW, and FIND. Reference [4] notes that names of verb groups are printed in small capitals as lexemes. Where a verb occurred in more than one group, the context was examined in order to determine the appropriate category. Hence, verb groups and explanations are presented as follows.

3.3.1. ARGUE Verbs

These are concerned with writing and other forms of communication, where a writer makes a case using such words as *argue*, *contend*, *claim*, *maintain*, *observe*, *assert*, and *point out*. For example:

(17) Brown and Kerry (1987) *argued* that it is better to grow resistant cultivars than the susceptible ones provided their agronomic attributes are comparable since they are generally more costly than susceptible ones. (SBT)

3.3.2. THINK Verbs

These are concerned with thinking, including having a belief; knowing, understanding, hoping, fearing. THINK verbs include *think*, *believe*, *reflect*, *imagine*, *consider*, *suppose*, *sense*, *deem*, *judge*, *assume*, and *feel*. For example:

(18) Sposito (1984) *believes* that, in contrast, the proton surface charge density is due to the imbalance of complexed protons and hydroxyl charges on the surface, primarily in the exposed periphery of the mineral, and varies with pH of the surrounding solution. (SCH)

In examples 18, *believes* can be classified as THINK verbs.

3.3.3. SHOW Verbs

These are concerned with indicating a fact or situation. They are verbs of display and include: *show*, *illustrate*, *explain*, *describe*, *confirm*, *prove*, *demonstrate*, and *reveal*. For example:

(19) Jakeman and Hornberger (1993) *described* various configurations of the black-box models in which they reported very good agreement between observed and predicted daily stream flows using the time series analysis transfer function method. (SAE)

In Example 19, *described* is an example of SHOW verbs.

3.3.4. FIND Verbs

These verbs are concerned with coming across or discovering something. Verbs in this category include: *find out*, *locate*, *unearth*, *uncover*, *notice*, *realise*, *observe*, *determine*, *discover*, and *establish*. For example:

(20) The lethal dose that killed half of the nematode (LC₅₀) and 95% confidence intervals were *determined* using probit method of the Finney computer programme (McLaughlin et al, 1991). (SBT)

The italicised words in Examples 20 is classified as a FIND verb.

Having discussed the four categories of reporting verbs as presented in the literature, I now look at the distributions of each type across the six dissertations. Table 5 shows the distributions of the four verb groups in the study's corpora.

Table 5. Patterns of Reporting Verb Groups in the Study Corpora

Reporting Verbs	Science dissertations		Humanities dissertations	
	Frequency	%	Frequency	%
ARGUE	11	3.7	106	35.6
THINK	13	4.3	15	5
SHOW	37	12.4	19	6.4
FIND	46	15.4	52	17.4

N=299

It can be noted in Table 5 that FIND and SHOW verbs were preponderant among Science dissertations while ARGUE and FIND verbs were the most dominant in Humanities dissertations. It is notable that ARGUE and THINK verbs were the least preferred in Science dissertations but in Humanities dissertations, THINK and SHOW the least preferred.

These observations reveal that each disciplinary culture could be guided by conventions which could be based on contrasting epistemological orientations. The high incidences of ARGUE verbs suggests that in the humanities and social sciences, writers advance overt criticism of existing research as part of establishing and arguing a case. The significant frequency of FIND and SHOW verbs in the Science dissertations, on the other hand could be helping to convey the experimental explanatory schema typical of the sciences. This is where knowledge is more likely to be represented as proceeding from laboratory activities than the interpretive operations or verbal arguments of researchers that is characteristic of the humanities and social sciences [3,21].

Having looked at the reporting verbs used to make various forms of citation, I now turn to the tense options dissertation writers made in presenting the citation.

3.4. Tense and Aspect in the Citations

Tense, in this paper, is used as a cover term to refer to both tense and aspect. It refers to the present, past, present

perfect and past perfect. Though [11] points out that only three tenses apply in citations (i.e., the past, present, and present perfect), a fourth category (i.e., past perfect) was included in the study reported in this paper though it clearly recorded very few occurrences. The future tense has been excluded because it does not feature in citations.

To begin with, the present tense as defined by [22] is the tense that locates a situation at the same time as the present moment (instantaneous present) or over an extended period of time which includes the present moment as illustrated in Example 21.

(21) Mills (1995:154) *contends* that:

If the character is very active in a text, in control of their own decisions, an analysis of text describing them might be expected to show a range of processes and of relatively high number of material action-intention processes where the character is performing an action which they have voluntarily chosen as a course of behaviour. (AEN)

The verb *contends* is marked by the third person singular present tense feature *-s*. The verb is in the present simple and it reflects the unrestrictive present.

The simple past, on the other hand, locates a situation prior to the present moment. In Example 22, the verb *estimated* indicates that the situation it describes took place at an earlier time in relation to the present.

(22) With regard to the levels of trace elements in soils, Bowen (1979) *estimated* the residence time of Cd in soils to be in the range of 75-380 years, Hg persists for 500-1000 years and the more strongly adsorbed elements including As, Cu, Ni, Pb, Se, and Zn have residence times of 1000-3000 years. (SCH)

The example indicates that the past tense, marked by *-ed* in the italicised word, refers to the quantitative results of past literature that place the cited author's work in a mainly historical context. This usage therefore suggests that the past tense is used to claim non-generality about past literature.

According to [22], the present perfect tense locates a situation started prior to the present moment and continues into the present moment as Example 23 shows:

(23) Exposure to high levels of mercury, gold and lead *has also been* associated with the development of autoimmunity, in which the immune system starts to attack its own cells, mistaking them for foreign invaders (Sheila *et al* 1995). (SCH)

Example 23 indicates that the present perfect, marked by *have + -en*, operates as a signal to the reader to expect further discussion of the topic. This suggests generality about past literature.

The past perfect locates a situation prior to a point in the past. As [22] points out, it is a time further in the past, seen from the viewpoint of a definite point of time already in the past as shown in Example 24:

(24) Steinnes (1987) *had reported* concentrations of most metals to be around ten times higher in moss plant, soil humus and top soils along the southern coast of Norway than in the centre of the country. (SCH)

The expression *had reported* in example 24 has the structure *had + -ed*, indicating that the quantitative findings were reported at a time prior to the past.

Tense options used to express reporting verbs were determined from the corpora of the study reported in this

paper. Table 6 summarises the patterns of tense use in both Humanities and Science dissertations.

Table 6. Patterns of Reporting Verb Tenses in the Study Corpora

Type of tense	Science Dissertations		Humanities Dissertations	
	Frequency	%	Frequency	%
Simple past	63	22.3	47	16.7
Simple perfect	4	1.4	1	0.4
Simple present	23	8.2	127	45
Present perfect	12	4.3	5	1.8

N=282

Patterns in the table reveal that Science dissertations have a preference for simple past tense while Humanities dissertations are inclined to use the simple present. The table also indicates that the simple perfect and present perfect tenses are not preferable in both communities of practice. In the Humanities dissertations, the high frequency of the simple present in the citations could reflect the current state of knowledge and the present implications of research findings that form part of the character of knowledge construction in the humanities and social sciences [12]. On the other hand, the simple past in Science dissertations appears to reflect the functions of reporting procedures used and experiments performed. Reference [23] confirms this when she notes that in the sciences, references to specific experiments will tend to be in the past tense.

As indicated in Table 6, the present perfect tense had quite insignificant occurrences in the study corpora. A contradiction therefore emerges especially with the literature indicating that the tense is one of the most preferred choices since it claims generality about previous literature, or refers to previous literature which is directly related to the current work [11,23]. This phenomenon is interesting and merits further investigation. However, [11] at the same time advances an interesting dimension in relation to tense usage in dissertation writing. He argues that because dissertations are expository texts, they may not be influenced by the time-lines and time sequences implied by the three tenses as happens in narrative writing. Rather, statements in dissertations should be interpreted in terms of generality and relevance. He puts forward the following argument:

...the general rules for the Past, Present, and Present Perfect seem to be less powerful in expository texts than in narrative ones, this being presumably due to the fact that time-lines and time-sequences, which are important elements in the traditional explanations, are more prominent in narratives [11].

The analysis in this section has shown that some citation types are not fully exploited by dissertation writers. It has also emerged that the writers are not fully aware of the reporting verbs that may be used to construct integral citations. Partly, this state of affairs could be explained by lack of proper instructional materials that lay emphasis on integral and non-integral citations. As one respondent noted:

(k) There are no avenues in place to sensitise students on the citation feature. Guidance is always from the supervisor.

There is a need, therefore, for teachers of advanced academic writing courses to select materials and design

syllabi that address the various citation types and the communicative purposes they serve in the disciplines.

4. General Conclusions

One of the most important conclusions is that citation is a socially constructed feature. The influence of a community of practice in which the writing takes place is evident. Therefore, writing citations is ideologically-driven. In addition, citations are not free from the values and beliefs of those involved in producing and processing them.

Secondly, the various types of citation and the accompanying reporting verbs are purposeful in the dissertation genre. Cultivating the best citation practices will entail an understanding of the communicative functions associated with each citation and reporting verb types.

Thirdly, the citation making practices are not only influenced by the conventions of a disciplinary culture in which the dissertation is being written, but also are creations of the writer. This is partly because variations were noted in the manifestation of citation feature in dissertations from the same disciplinary culture.

The citation feature is highly versatile. Several levels can be established that give citation its character. For instance, at the disciplinary cultural level, there are a number of shared communicative purposes and associated generic features. Narrowing the focus, a dissertation produced in a particular discipline reveals peculiar citation characteristics. This means that to understand the feature, the various levels must be in the picture.

5. Implications for Teaching

The results of this study can provide guidance for the development of classroom or reference materials to facilitate conscious-raising for those preparing to write their dissertations. Accordingly, some of the elements that are important for the teaching and learning of the citation feature include:

- Awareness of variations and general patterns in the use of citations.
- Knowledge of the rhetorical purposes unique to one's discipline or academic community of practice and the range of choices of citation features available for each function
- Some views about why citations in each discipline appear in the way they do.

Being aware of variations characterising citation practices in the disciplines can prevent overgeneralization and help supervisors and supervisees to evaluate the choices appropriate for disciplinary purposes. Therefore one of the implications the study reported in this paper has for those writing their dissertations is that academic writing texts and manuals focusing on citation need to be corpus-based. An effective way of raising students' awareness of the important norms of the citation feature in a discipline is for the academic writing teacher or dissertation supervisors to select their own authentic corpus-based materials such model dissertations and research articles in their disciplines for their students. The

use of such materials is one of the best ways of developing students' citation competencies.

Secondly, knowledge of general patterns and the rhetorical functions of the various citation types can help syllabus and material designers to produce teaching/learning materials that delineate the citation feature in their disciplines. This application will discourage students from making citations that do not meet the benchmarks in their disciplines.

Thirdly, different pedagogical efforts for raising learners' awareness of conventions for academic writing have been presented in previous work as concerns both English language teaching and the pedagogy of subject-specific use of English (e.g. [24,25,26]. Reference [26] for instance, suggests three broad types of exercise useful in the teaching of hedging techniques, namely sensitisation exercises, rewriting exercises, and sets of hedging phenomena that may be employed as a starting point in elementary courses. Borrowing from this approach, I offer a relatively broad approach to the teaching of the citation feature that pays attention to general questions.

As a starting point, the categories of citation emerging in the present analysis and associated communicative purposes can be used by supervisors and their supervisees to inform themselves of requirements specific to their disciplines. The teaching of the citation feature should therefore focus on: sensitising learners on the citation types preferred in various disciplines [27], the inherent elements and communicative purposes; comparing several examples to determine the variation in usage; using gap-filling exercises; and giving citation focus exercises that can provide clues for decoding the citation and features.

In a follow-up activity, the writing teacher might give students partial or complete authentic texts from their own disciplines and to get them to identify the categories of the feature, occurrences, and rhetorical functions [28,29]. The learners could then compare their own citations in academic writing tasks with more expert pieces such as dissertations and research articles in their areas of specialisation. The focus should be on the degree a particular citation type is employed and why, as well as how manifestations in one discipline relates to that in other disciplines. The following questions would be particularly helpful to the teacher of academic writing:

- How do the learners explain the similarities and differences?
- Why do they use the citation feature in the way they do?
 - If they avoid a certain citation type, why do they do so? What is the practice in their discipline?
 - What audience are the students writing for?
 - What are the reader expectations regarding the citation feature?
 - How do the students position themselves in relation to the literature they cite?

Based on the evidence from the analyses, the teacher might next ask the students to try to compose citation norms in their disciplines. The students could interview their subject lecturers to see whether these norms meet the expectations of those who will be making judgements about their writing. This will be in line with the suggestion that the student should take the role of researcher into the dominant norms of their fields [30,31,32].

As a follow-up to such initial exercises, instruction could, proceed rewriting exercises. The writing teacher or supervisor can ask learners to rewrite citations in an article, term paper, or section of a dissertation from another discipline so that it reflects the style in their field of expertise. This exercise will assist students gain expertise in those citation types that are critical in their communities of practice.

The activities suggested above will be a critical consciousness-raising mechanism to ensure dissertation writers understand the types of citation and the effects of manipulating these options to meet the communicative purposes in their disciplines.

6. Areas for Further Research

This paper has revealed that dissertations produced in different disciplines display variations in the manifestation of citations. A number of communicative purposes associated with the feature have also been revealed. For a better understanding of this feature, it would be helpful to investigate the role of institutional establishments in managing citation norms in their disciplines. Such studies will, for instance, show whether and/or how citation norms have been negotiated and revised over time and what has influenced these changes.

Also, since the paper has focused on citation in the Science and Humanities dissertations, similar studies should focus on dissertations from other disciplinary cultures, other genres such as textbooks and research articles.

In addition, the scheme of analysis proposed in this paper can be extended to the investigation of a larger corpus. With a larger sample, comparative studies can also be conducted to examine the subfields within each discipline. There is also need to narrow down the scope of research into the characteristics of specific disciplines, because such labels as 'Humanities disciplinary culture' or 'Science disciplinary culture' assume homogeneity of citation style at the expense of communicative purpose, addressor-addressee relationships and discipline specific conventions.

The analysis presented in this paper has not clearly indicated what motivates students to cite in their papers. This is a pertinent area which needs further investigation. In investigating citer motivation, it would be interesting to find out whether it is the quality of the arguments of which the citations are part, or the reputation of the citees in a particular field, or it is simply guarding against plagiarism. Such research work may be based on successful dissertations in the disciplines, and on views from writers themselves as well as experienced professionals in the disciplines.

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The author has no competing interests.

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