

Citation Analysis of Undergraduate Research Projects: A Case Study of the College of Agricultural Sciences, Landmark University, Omu Aran, Kwara State

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Abstract

Purpose: *The study focused on citation analysis of undergraduate honors project in the College of Agricultural Science, Landmark University, Omu-Aran, Kwara State. Specifically, the study sought to know the average citation counts per programme in the College of Agriculture; investigate the recency of sources cited by students of the College; examine the sources of cited materials by students of the College; find out the information sources mostly cited by the students; and ascertain the highest and lowest citations by programmes in the College.*

Design/Methodology: *The study adopted a Bibliometric method and specifically a citation analysis of degree research project submitted by graduates of the College of Agricultural Sciences, Landmark University, Omu-Aran, Kwara State. The study covered the 2015 and 2016 sets of graduates from the College of Agricultural Sciences. Analysis focused on submission of project, citation counts, and average citation counts per programme; sources of cited materials, recency of citation and highest and lower citation by individual project.*

Findings: *It was found that students' projects submitted from the programmes in the College of Agriculture were very low. This is not peculiar to Landmark University considering the declining nature of enrolment into agricultural programmes in Nigerian universities. Animal Science programme had the highest submissions in 2015 but this dropped in 2016. Prevalence of the materials cited are books with 5,756 citation counts representing 43.7%. Journals ranked 2nd with 4,604 citation counts (34.9%). Newspapers were the least cited materials representing 0.1%. The most recent (2016 and above) citations were just 5% while the*

Not Recent (below year 2000) 28.4%. Book citation surpassed that of journal and internet/electronic resources.

Originality/Value: *Undergraduate students need proper orientation on general research culture and most especially citation and referencing. This will guide against plagiarism and ensure due credit to sources of research information.*

Keywords: *Academic libraries Citation, Project, Landmark University, Research, Undergraduate, Nigeria*

Paper Type: *Empirical*

Introduction

It may not be an overstatement to note that project writing by undergraduate students in the final year is their first exposure to the culture of research. They might have excelled in class work and written examinations but find the research activity as a strange terrain. In written examinations and class tests, it may sound strange to insist that students must cite their sources, giving appropriate references except in some special courses. However in academic research work, every categorical statement is expected to be traceable to authorities or sources

from where they emanated. Kotzé (2016) asserted that it is compulsory that all academic documents such as research reports, assignments, dissertations, projects, research scripts, journal articles and conference papers must include citations and a list of references at the end listing the sources of information used in compiling the document.

This according to Kotzé is necessary to provide support for factual statements/claims made in an academic document; enable the reader to verify quotations and/or information; enable the reader

to follow up and read more fully the cited Undergraduate students, especially those who did not attach much importance to courses on research and library courses citation and referencing, may find it difficult citing references and making effective use of library resources for their research activities. Wilson (2012) noted that librarians are usually curious about what resources students use for their research work, how they gain access and whether these resources are provided by the library.

Landmark University was licensed in March 7, 2011 by National Universities Commission (NUC) to run undergraduate programs in the Colleges of Agricultural Sciences; Sciences and Engineering, Business and Social Sciences. On March 21, 2011, the University was officially dedicated and commenced full operation. Agriculture is the main focus of the institution. The College of Agriculture is the hub of the University's agrarian revolution towards ensuring food safety revolution in Africa and the world in general. It exposes students to various improved techniques in both mechanized and non-mechanized agriculture. The College offers five-year Programmes leading to the award of the Bachelor of Agriculture (B. Agric.) degree in Agricultural Economics, Agricultural Extension and Rural Development, Animal Science, Crop Science and Soil Science. The University has constant electricity supply, internet facility and enabling environment to facilitate academic activities.

Statement of problem

The quality, recency and number of sources cited in a research underscore the quality of the research. It has however been observed that undergraduate research appears not to undergo rigorous supervision compared to postgraduate studies, hence supervisors pay less stringent attention to recency, sources cited as well as number of cited sources by undergraduate students. Undergraduate students are presumed to be new to research culture and most members of faculty tend to focus more on postgraduate student research. This trend appears to affect thoroughness expected in a research. In view of this majority of them copiously cite only textbooks and in some cases newspapers. This has a way of indirectly affecting recency of citation as some textbooks have not been revised in a long time which may not reflect current situation of events. Specifically, Landmark

author's arguments; and avoid plagiarism. University subscribes to electronic databases such as EBSCO, ScienceDirect and electronic books on the platform of Proquest. If students do not explore the array of information sources on this platform alongside physical resources, it could therefore mean that those materials are just available for accreditation purposes. It is against this background that the study investigated citation analysis of undergraduate research projects of Agricultural science students of Landmark University

Objectives of the Study

1. To know the average citation counts per programme in the College of Agriculture
2. To investigate the recency of sources cited by students of the College
3. To investigate the sources of cited materials by students of the College
4. To find out the information sources mostly cited by the students
5. To ascertain the highest and lowest citations by programmes in the college

Review of Related Literature

Citation analysis as observed by Reiman-Sendi (2015) is the study of the impact and assumed quality of an article, an author, or an institution based on the number of times works and/or authors have been cited by others. Citation analysis focuses on citation process of sources involved in scholarly communication. Some of the details covered include the author, the timeliness of cited sources, the quality of the sources, frequency of cited sources and the medium (Oky, 2003; Nkiko and Adetoro, 2007). Considering the benefit of citation, it has been noted that it could be used as a tool for evaluating the citation habits of undergraduate students (Knight-Davis and Sung, 2008).

Several scholars have done investigations on citation analysis covering undergraduate and postgraduate levels. Taking a random sample of bibliographies covering undergraduate papers in an entire college, Mill (2008) did citation analysis of their work to the types of resources cited and to know whether the electronic and book sources were accessed through the library of the college. Leiding (2005) focused on the level of use of resources in a particular library and the weakness of the collections, using undergraduate honors project bibliographies. Kriebel and Lapham(2008) investigated proportionate use of print and electronic

resources, focusing on social science honors projects for the investigation.

Hovde (2000) narrowed citation analysis research towards freshman English papers to assess the type of work cited, the origin of the citation, and characteristics of the journal citations, and suggested that student bibliographies are a flexible, non-invasive, and time-efficient method for assessing student library use. Carlson (2006) also studied bibliographies from student research papers across class levels, disciplines, and course levels. Brunvand and Pashkova-Balkenhol (2008) looked at undergraduate use of government information and suggested incorporating more government information in standard library instruction, while Cooke and Rosenthal (2011) examined the citation habits of students who had received library instruction versus those who had not. Clark (2010) researched the citation habits

of students who had received online versus face-to-face instruction.

Methodology

The study adopted a Bibliometric method and specifically, a citation analysis of degree research projects submitted by graduates of the College of Agricultural Sciences, Landmark University, Omu-Aran, Kwara State. The study covered the 2015 and 2016 sets of graduates from the College of Agricultural Sciences. The references of projects submitted to each of the four programmes that make up the College of Agricultural Sciences in the University were assessed one after the other and the different types of cited materials were recorded according to programmes. Specifically the analysis focused on submission of projects by programme, citation counts by programmes, average citation counts per programme, sources of cited materials, recency of citation and highest and lower citation by individual project.

Results

Data Presentation and Discussion of Findings

Table 1: Submission of Projects by Programme

Programme	Project Submission for the Year 2015	Project Submission for the Year 2016	Total Submissions	Ranking
Agricultural Economics	7	6	13	4
Agricultural Extension & Rural Development	45	18	63	3
Crop/Soil Science	36	47	83	1
Animal Science	58	19	77	2
Total	146	90	236	

Table 1 above represents the total number of projects submitted by each graduating class of students in each of the programmes in the College of Agricultural Sciences. In 2015, 146 projects were submitted by the graduating set of that year, while 90 were submitted in 2016. Crop/Soil Science programme had the highest number of submission (83) which covers the two sets of students the University has graduated in the College of Agricultural Sciences. Animal Science programme ranked 2nd with 77

submissions, while Agricultural Economics had the least submission (13). Generally, the submissions from these programmes are very low. This is not peculiar to Landmark University considering the declining nature of enrolment into agricultural programmes in Nigerian universities. Animal Science programme had the highest submissions in 2015 but this dropped in 2016.

Table 2: Citation Counts by Programme

Programme	Citation Count	Percentage	Rank
Agricultural Economics	348	2.6%	4
Agricultural Extension & Rural Development	3,427	26.0%	3
Crop/Soil Science	3,767	28.6%	2
Animal Science	5,638	42.8%	1
Total	13,180	100%	

Table 2 revealed that prevalence of the citations was from the Animal Science programme with 5,638 citations. Agricultural Economics had the

lowest citation, 348. This is expected as there were only few students who graduated from the programme.

Table 3: Average Citation Counts per Programme

Programme	Citation Count	Average Citation Counts
Agricultural Economics	348	27
Agricultural Extension & Rural Development	3,427	54
Crop/Soil Science	3,767	45
Animal Science	5,638	73

Table 3 above presents the citation counts and the average for each of the four programmes. Agricultural Economics has record 384 citations with average of 27 for individual citations. Agricultural Extension and Rural Services records 3,427 with average of 54 citations for an individual while Crop Science records 3, 767

citation with average of 45 individual citation and Animal Science has a record of 5,638 with average of 73 citations for individual project. A total of 236 research projects were assessed. These generated a total of 13,180 citations with an average of 55 citations per project.

Table 4: Sources of Cited Materials

Sources of Citation	Citation Counts	Percentage	Ranking
Books	5,756	43.7%	1
Journals	4,604	34.9%	2
Internet/E-Resources	1,365	10.4%	3
Newspapers	12	0.1%	7
Conference Proceedings	542	4.1%	5
Unpublished Research Projects	763	5.8%	4
Grey Literature	138	1.0%	6
Total	13,180	100%	

Table 4 shows types of materials cited and the level of citedness. Prevalence of the materials cited are books with 5,756 citation counts representing 43.7%. Journals ranked 2nd with 4,604 citation counts (34.9%). Newspapers were the least cited materials representing 0.1%. This is expected as articles in newspapers are mere individuals' opinions and have not been subjected to any peer review process. Internet/E-

resources ranked 3rd with 10.4%. This is not expected in an ICT age and especially in a University that provides access to a deluge of online resources and 24/7 uninterrupted access to the internet. This result however, is an improvement on the findings of Nkiko and Adetoro (2007) and Iroaganachi et al. (2014) who reported 7.7% and 8% respectively in a similar study conducted in Covenant University.

Table 5: Recency of Citation

Year	Recency	Citation Count	Percentage	Ranking
2016 & above	Very highly recent	659	5.0%	5
2011-2015	Very Recent	3,182	24.1%	2
2006-2010	Recent	2,784	21.1%	4
2001-2005	Not very recent	2,807	21.4%	3
2000 & below	Not recent	3,748	28.4%	1
Total		13,180	100	

In table 5, citations that fall within 2016 and above were classified as *Very Highly Recent*, 2011-2015 *Very Recent*, 2006-2010 *Recent*, 2001-2005 *Not Very Recent*, while 2000 and below were considered *Not Recent*. 659 (5%) of the total citations were *Very Highly Recent*, 3,182 (24.1%) as *Very Recent*, 2,784 (21.1%)

Recent, 2,807 (21.4%) *Not Very Recent* while the largest number, 3,748 (28.4%) were *Not Recent*. The Not Recent category appears to be most prevalent. This is not a good omen for research. One of the major assessments of a good research is the recency of the materials cited. Use of materials that are older than ten years from the year a research is conducted

should be discouraged except where it becomes necessary to cite such materials.

Table 6: Highest and Lowest Citations by Individual Projects

Department	Highest 3	Lowest 3
Agricultural Economics	48, 46, 40	17, 19, 22
Agricultural Extension & Rural Development	105, 97, 88	12, 17, 25
Crop/Soil Science	127, 101, 88	9, 15, 16
Animal Science	210, 208, 147	12, 23, 25

From Table 6, the highest individual project citation is 210 from Animal Science programme. This may be as a result of the extent of literature review done by this individual. It may also be that the individual did not do a thorough review of literature but just copied from existing researches conducted in his/her area of research. Other rankings are as presented in table 6.

Conclusion and Recommendations

The findings from this study are pivotal to the need to increase enlightenment of undergraduates on the culture of research. It was discovered that most recent citations were not more than 5% of the entire citations while not very recent citations were 28%. This variance is a major concern that should inform librarians on the need to include citation and citation formats in general courses taught by academic librarians in higher institutions. In the same vein, lecturers need to use this also as a basis for mentoring of undergraduates on research before the final project. The training on conducting research should not be limited to research methodology class alone.

Findings revealed that citation of books (43.7%) surpassed journal (34.9%) and electronic/internet sources (10.4%). It should be noted that while books have wider coverage of events, process and concepts among others, heavy dependence on books should however be discouraged as they may not cover current reports like journals which mainly focus on primary information. While journals capture current events and report finding, review of textbooks take longer time which may not make them reliable for current events. Internet/E-resources which was rated third among sources cited does not justify the unrestricted access to deluge of online resources made available in Landmark University Library. This result however, is an improvement on the findings of Nkiko and Adetoro (2007) and Iroaganachi et al. (2014) who reported 7.7% and 8% respectively in a similar study conducted in Covenant University. This is also a pointer to the need to investigate the predominant online

activities of students in Landmark University and Covenant University. This discovery places responsibility on lecturers and librarians to direct attention of students to the benefits accruable from using online resources.

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