

Analysis of Literature Cited by Agricultural Education Students at the University of Eswatini

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Abstract

Undergraduate and post-graduate students in Agricultural Education at the University of Eswatini are required to review the literature as they write the research project or thesis. However, no study was conducted on the analysis of literature cited by students in Agricultural Education. Therefore, the study aimed at the analysis of literature cited in undergraduate (n=284) and post-graduate (N=57) students' research project or theses in Agricultural Education at the University of Eswatini. A content analysis was employed to analyse the Agricultural Education research projects or theses found at Luyengo Library. A content analysis protocol having the following items was used: type of literature review, number of citations, differences in citations and reference list, the citation by discipline, and newness of literature. Findings of the study revealed the following regarding the literature: books were the main sources; the literature review predominantly was integrative; the literature had few sources and were from Agricultural Education; and was generally old. Therefore, it was concluded that the review of literature by both undergraduate and post-graduate students at UNESWA was wanting. Thus, it was recommended that the guidelines for both undergraduate and post-graduate programmes must be strengthened.

Keywords: Agricultural Education; analysis; citation; content analysis; literature review; post-graduate; undergraduate.

1. Introduction

From the late 1970s to the early 1980s, agricultural educators started believing in both knowledge and facts coming from empirical investigation. The agricultural educators began to consider themselves as researchers. Agricultural Education through research became a method of verifying existing knowledge, creating new knowledge, and for disseminating and applying that knowledge. However, when analysing research conducted in Agricultural Education Mannebach, Reference [1] suggested that researchers must continually examine their research and scholarly activities as they point at what is being done and the direction where the discipline is going.

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Shinn, Briers and Baker [2] found that “*there is a need to re-examine Agricultural Education in a future that has already happened.*” This assertion was based on advice by [3] that it is possible and fruitful to identify major events that have already happened to predict effects in the future. Thus, a need arose to analyse the research conducted in the discipline [4]. Correspondingly, a need arose for Agricultural Education to understand where the discipline has been in order to focus future research [5]. Literature review is one aspect of research that must be studied in Agricultural Education.

Literature review is a written summary of journal articles, books, and other documents, that describes the past and current state of information on the topic of a research study [6]. Reference [7] defined literature review as a critical appraisal of the current collective knowledge on the subject. Reference [8] describes it as an excellent way to summarise published information on a specific topic. Reference [9] considers literature review as an original work based on critical examination of the literature on a topic. Finally, Reference [10] explained that literature reviews evaluate the literature; answer important questions; and draw conclusions from a vast array of available literature.

Reference [7] asserted that the literature review should be an informative, personal, but unbiased synopsis of the information, providing a balanced view that includes conflicting findings and inconsistencies, as well as established and current thinking. It also organises the literature into sub-topics, and documents the need for a proposed study. Literature review contains several elements, including an introduction, methods, discussion, conclusions, tables (if necessary) and reference list. Each of these areas should be covered in the literature review, but the format can vary according to the topic. Headings should be used to organise the literature review [8]. In the most rigorous form of research, educators base this review mainly on research reported in journal articles. A good review, however, might also contain other information drawn from conference papers, books, and government documents [6]. Literary analysis is a style of literature that resembles an argument in the written work [7]. In literature review, one makes a claim about what is written and has to support the claim with valuable evidence from the text as well as reasoning and analysis.

This literature review serves several important functions in research. It enables investigators to define the frontiers of their field; enables researchers to place their questions in perspective; helps researchers to limit their research question and to clarify and define the concepts of the study; investigators learn which methodologies have proven useful and which seem less promising; avoid unintentional replication of previous studies and places researchers in a better position to interpret the significance of their own results [22]. In addition, Reference [7] reported that literature review is essential for developing a research idea, to consolidate what is already known about a subject and to enable the researcher to identify any knowledge gaps and how the research could contribute to further understanding. This helps the researcher develop hypotheses and to frame the research question [11]. Literature review enables the researcher to identify other research that supports or corroborates the findings as well as results that differ, enabling one to position the research in the field [7]. The literature cited help the researchers to have a concrete base for the study to known and existing information and analysis can provide means of assessing key factors that usually indicate the research and publishing characteristics of a profession [12]. There is a need to track citations and review literature to gain a clear sense of a discipline’s research agenda [13]. Literature review in any field is essential as it offers a comprehensive

overview and recapitulation on the given scholarship from past to present, giving the reader a sense of focus as to which direction, the new research is headed [14]. The purpose of a response to literature is to persuade the readers that the analysis and interpretation of the work is valid, reasonable, and logical [42].

Literature review can be in different forms or types as chosen by the author. The most common types are: argumentative, integrative, historical, methodological, systematic, and theoretical review [14]. An argumentative review presents an opposing view to a given position; which is valuable to persuade others to join the researcher in supporting the thesis. An integrative review is composed of examinations and critical analysis on a given topic to introduce a need for new research. Similarly, a historical review assesses all historical records of scholarship chronologically. The methodological review examines the research methods alone, collection of data, their critical analysis, interpretation, and research results or findings. A systematic review consists of an overview of existing evidence pertinent to a clearly formulated research question [15]. Finally, theoretical review focuses concretely on examining the corpus of theory that has accumulated regarding to an issue, concept, theory and phenomena [15, 42].

Reference [16] categorised the types of literature as a mini- or a full review. A mini-review is a rather short review, focusing on the last few years, with a limit on the number of words and citations, whereas a full review encompasses everything in the subject of interest. The literature reviews can also be classified as a dichotomy of descriptive versus integrative reviews. The descriptive reviews focus on the methodology, findings, and interpretation of each reviewed study, while the integrative reviews attempt to find common ideas and concepts from the reviewed material [17]. Literature review can also be categorised into narrative and systematic reviews. The narrative reviews are qualitative while the systematic review attempt to test a hypothesis based on the published evidence [18].

Reference [19] noted that documents can be associated with many other features in addition to citations, such as authors, publishers, journals, as well as their actual texts. Reference [20] submitted that sources of literature include books and articles. Reference [21] argued that literature review involves sources such as periodical indexes, abstracting sources and citation indexes. Other sources for literature are the Educational Resource Information Centre (ERIC), indexes of dissertations or theses, government publications, test sources, dictionaries, statistical sources and other electronic indexes.

There is no single answer to the question about when the review reached has the point of being enough in terms of references reviewed. The number is somewhat determined by the purpose of the review. A review for a journal article typically is considerably shorter than the review for a doctorate dissertation [23]. The newness or age of the literature is also an issue in research. For instance, for educational research projects, students are required to cite sources which are 10 years or newer for their university based work [24]. Navigating all the sources may be from any of the known sources and the students should not cite very old sources as there are updates.

There are several errors that are common in literature reviews. One is to provide an excellent summary of the literature, but not take it a step further and present an analysis of the literature in relation to practice. It is

important to critique the literature presented. If this step is omitted, then the literature review is a little more than a convenient outline of the information, thus, adding nothing new to the topic. Another common error is the inability to conduct a thorough search of the literature. It is important to ensure that a comprehensive review has been conducted. The researcher must ensure that the references adequately address the topic and include studies conducted in the topic of interest. Bias is another concern with literature reviews. For example, authors might choose to include only studies with findings that support their point of view. It is important to provide a fair and balanced review of the literature that does not lean toward any particular perspective [8].

Undergraduate and post-graduate students in Agricultural Education at the University of Eswatini are required to review the literature as they write the research projects or thesis [25, 26]. A number of studies have been conducted to analyse the research work conducted by both under-graduate and post-graduate students in Agricultural Education at the University of Eswatini [27, 28, 29, 30, 31, 32]. However, none of these studies focused on the analysis of literature review by the students in Agricultural Education. Therefore, this study aimed at the analysing the literature cited by undergraduate and post-graduate students in Agricultural Education research at the University of Eswatini.

3. Purpose and objectives of the study

3.1. Purpose of the study

The study sought to analyse the literature cited by students in Agricultural Education research at the University of Eswatini.

3.2. Objectives of the study

The objectives of the study were to:

1. identify sources of literature review in the research theses of the Agricultural Education students;
2. find out the average citations per thesis by the students in Agriculture Education;
3. identify the type of literature review used by Agricultural Education students in the theses;
4. verify if the literature cited in the projects are all included in the reference list of the theses by Agricultural Education students;
5. classify the literature cited by Agricultural Education students in terms of Agricultural Education or non-Agricultural Education; and
6. describe the newness of the cited literature used by Agricultural Education students in the theses.

4. Methodology

The study was qualitative; employing desk review in data collection of Agricultural Education undergraduate research project (n=284) completed from 2008 to 2017 and a census of the post-graduate student theses completed between 1996 and 2018 (N=57). The researchers sought permission in writing to collect data from UNESWA Library in 2018, and permission was granted by the Senior Assistant Librarian from Luyengo

Campus of the University of Eswatini. A total of 341 research projects found to be focused in Agricultural Education were analysed and the rest were in agricultural extension. A content analysis protocol was developed and used in data collection. The content analysis protocol had six items guided by the objectives of the study. These items were on the sources of literature cited, number citation per thesis, type of literature review, number of citations in the reference list, classification of the literature and the newness of the literature. Trustworthiness and rigour were addressed using credibility, transferability, dependability and confirmability. Two experts from the Department of Agricultural Education and Extension at UNESWA reviewed the content analysis protocol used for data collection to address issues of credibility. The experts added items and removed some from the content analysis protocol. Dependability was ensured by a detailed description of the implementation of the research methodology. Transferability was ensured by providing sufficient contextual information about students' research conducted at UNESWA and thick description of the findings from the study. Finally, confirmability was assured through audit trails. The undergraduate and post-graduate research projects and theses were analysed manually, using tally marks which were converted into frequencies and percentages.

5. Findings and discussion

5.1. Sources of literature review for Agricultural Education students

Table 1 presents the sources of literature review used by the undergraduate and post-graduate students when writing the theses in Agricultural Education at the University of Eswatini. The findings revealed that the students were generally using books (M=8.54, SD=9.85); followed by journals (M=7.43, SD=11.09). It is surprising to note that some scholarly sources such as the journal were not used at all in some of the theses. The use of both books and journals was better for the post-graduate students (Books – M=22.56, SD=14.64; Journal – M=19.56, SD=20.31) than the undergraduate theses (Books – M=5.73, SD=5.16; Journal – M=5.00, SD=5.54). It is also interesting to note that even though books were most used than any other source; the highest number of sources in the theses were journals for both post-graduate (N=96) and under graduate (n=50 theses). The findings are consistent with those from Edgar and Cox [33] who found that the citation analysis of articles published in the Journal of International Agricultural and Extension Education relied heavily on books, journals, conference proceedings and other literacy works.

However, Reference [34] observed that generally, agricultural educators are most likely to cite information from sources in the following order journals, followed by books, bulletins/reports, conference, papers/proceedings/presentations, dissertations/theses, and popular publications and other sources.

Table 1: Sources of literature review for Agricultural Education theses.

Source	Undergraduate (N=284)				Post-graduate (N=57)				Total (N=341)	
	Min.	Max	M	SD	Min.	Max	M	SD	M	SD
Books	0	37	5.73	5.16	1	68	22.56	14.64	8.54	9.85
Journal	0	50	5.00	5.54	0	96	19.56	20.31	7.43	11.09
Magazine	0	21	0.31	1.61	0	13	2.04	3.34	0.54	1.79
Newspaper	0	5	0.33	0.7	0	6	0.96	1.39	0.65	0.88
Others	0	19	4.85	4.01	0	31	6.44	6.01	5.65	4.44

5.2 Average citation in the literature review for Agricultural Education theses

Table 2 presents the average number of citations in the undergraduate and post-graduate theses of Agricultural Education students at the University of Eswatini. The findings revealed that on average the undergraduate students had about 28 references (M=27.55). The post-graduate students had an average of 55 citations (M=55.11). The undergraduate students had an average of 22 citations (M=22.01). The maximum citation was 122 citations for the undergraduate student and 202 for the post-graduate students. Radhakrishna, Eaton, Conroy and Jackson [36] noted that the average number of citations per article increased from 4.5 citations per article to 19.7 citations per article in 1982 to 2000. Similarly, Swafford and Anderson [34] found that the citing of peer reviewed journal articles, books, and papers/proceedings increased by at least 120%, while the citations of non-peer reviewed magazines decreased by 12.5%. However, it is worth noting that the number of citations in an article is fewer than in thesis or dissertation because the former is shorter than the latter [23]. It can be noted that there is no single answer to the question about when the review has reached the point of being enough in terms of references reviewed.

Table 2: Average citation in the literature review for Agricultural Education students.

	Undergraduate (N=284)				Post-graduate (N=57)				Total (N=341)	
	Min.	Max	M	SD	Min.	Max	M	SD	M	SD
Citation per thesis	4	122	22.01	12.4	9	202	55.11	36.62	27.55	22.4

5.3. Types of literature review used by Agricultural Education students

Table 3 presents the types of literature review used by the undergraduate and post-graduate students in Agricultural Education at the University of Eswatini. The findings reveal that the literature review was mainly integrative (M=13.94). Further analysis indicates that in both post-graduate (M=30.44) and undergraduate theses (M=10.63) the form in which the literature was reported was integrative.

The maximum number of theses that used the integrative approach under the post-graduate students was 102 theses while in undergraduate students were 65 research projects.

Integrative review has a potential to build informative research, practice and policy initiatives and it contributes to theory development and has direct applicability to practice and policy[41] (Broome, 1993).

Table 3: Types of literature review used by Agricultural Education students.

	Undergraduate (N=284)				Post-graduate (N=57)				Total (N=341)	
	Min	Max	M	SD	Min	Max	M	SD	M	SD
Argumentative	0	12	1.51	2.05	0	17	3.21	3.13	1.79	2.35
Theoretical	0	37	5.88	4.94	0	76	13.32	12.77	7.12	7.41
Integrative	0	65	10.63	8.73	2	102	30.44	22.25	13.94	14.14
Systematic	0	19	2.37	3.06	0	17	5.40	4.39	2.87	3.50
Methodological	0	12	0.92	1.77	0	9	1.86	1.84	1.07	1.81
Chronological	0	8	0.74	1.45	0	3	0.42	0.80	0.69	1.36

5.4. Number of citations missing in the reference list of Agricultural Education theses

Table 4 presents the number of sources cited in the document but not included in the reference list by the undergraduate and post-graduate Agricultural Education students at UNESWA. The findings revealed that on average the students were missing about six sources (M=5.52) in the reference list yet they were cited in the document. In the post-graduate thesis the students missed an average of four sources (M=4.04) while in the undergraduate theses the students missed an average six sources per thesis (M=5.82). The highest number of sources missed in the undergraduate students were 34 whereas for the post-graduate students were 25 citations. It is vital that the sources cited in the document are consistent with the source in the reference list because referencing enables readers to retrieve and utilise the source, thus, must be accurate and complete [35].

Table 4: Number of citations missing in the reference list of Agricultural Education theses.

Source	Undergraduate (N=284)				Post-graduate (N=57)				Total (N=341)	
	Min.	Max	M	SD	Min.	Max	M	SD	M	SD
Number of citations	4	122	22.01	12.4	9	202	55.11	36.62	27.55	22.4
Number of references	1	93	16.19	9.61	6	195	51.09	35.45	22.03	21.3
Discrepancy	0	34	5.82	5.98	0	25	4.04	5.49	5.52	5.93

5.6. Classification of the literature sources by Agricultural Education students

The classification of the literature sources by discipline were in terms of being Agricultural Education and non-Agricultural Education. Table 5 depicts that generally the literature cited by both post-graduate (M=37.84, SD=25.94) and undergraduate (M=12.33, SD=9.34) students was non-Agricultural Education. Surprisingly, in both undergraduate and post-graduate theses there were students who did not cite sources from Education at all. The maximum number of theses citing Agricultural Education was 56 in post-graduate students and 24 in undergraduate theses.

Reference [36] advocated for the broad range of journal usage over a variety of disciplines as it indicates the interdisciplinary approach held by Agricultural Education researchers. These authors were against the notion held by many authors during the 1990s on building upon data already published in the Journal of Agricultural Education in growing the discipline. Thus, they viewed the discipline as having a strong self-identification, which suggests that agricultural educators tend to build upon each other’s work. However, Reference [37] argued that too much citation within the discipline results in inbreeding, which should be carefully analysed in order to ensure that the profession does not lose diversity of subject matter. Reference [33] observed that international agriculture is a unique field of study that supports its own inquiry and the research and scholarly endeavours of other disciplines. Reference [33] were prompted to find out if international agriculture and extension education primarily cites works created in the field, or does rely on other disciplines. Even though, previous research has always emphasised on Agricultural Education having a strong self-identify (building on other researchers’ work within the discipline of Agricultural Education) and compactness (citing from few “core” journals); Reference [36] identified the need to expand research focus to include other areas of research

interests for professionals in the field.

Table 5: Classification of the literature sources by Agricultural Education students.

Source	Undergraduate (N=284)				Post-graduate (N=57)				Total (N=341)	
	Min.	Max	M	SD	Min.	Max	M	SD	M	SD
Agricultural Education	0	24	3.87	5.27	0	56	13.61	15.48	5.5	8.7
Non- Agricultural Education	0	93	12.33	9.34	2	142	37.84	25.94	16.6	16.56

5.7. Newness of citation used

Table 6 indicates that the literature cited in the theses were predominately old, as most of these sources were published more than 20 years ago (M=6.12). The post-graduate students used old literature that is more than 20 years (M=13.6). Similarly, most of the undergraduate students used the over 20 years old literature (M=4.62). It can be observed that a substantial number of the theses had also the recent literature: total (M=4.310); undergraduate (M=3.60) and post-graduate (M=7.87). The maximum number of theses within 10 years for the undergraduate was 48 theses (28.92%) and in the post-graduate there were 106 theses (39.41%).

Researchers in Agricultural Education have also investigated the aging or obsolescence of various literatures sources [34]. Reference [38] found that recently published articles were cited more often than older ones. Similarly, Reference [39] noted that article usage usually peaks two to three years after publication. Reference [24] having noted that newness or age of the literature as an issue in research, suggested that for educational research projects students should cite sources which are 10 years or younger. Navigating all the sources may be from any of the known sources and the students should not cite very old sources as there are updates. However, other researchers noted that literature from different fields becomes antiquated at different rates [40]. These authors reported that articles in medical and chemistry journals become obsolete long before articles in social science journals [34].

Table 6: Age of the Literature Cited.

	Undergraduate (N=284)				Post-graduate (N=57)				Total(N=341)	
	Min.	Max	M	SD	Min.	Max	M	SD	M	SD
1-3 years	0	14	3.6	3.15	0	47	7.87	8.27	4.31	4.7
4-6 years	0	15	3.16	2.76	0	27	6.63	5.34	3.74	3.57
7-9 years	0	19	3.1	2.79	0	32	6.42	5.55	3.65	3.62
10-12years	0	16	2.89	2.9	1	38	6.98	6.96	3.58	4.16
13-15 years	0	24	2.27	2.57	0	18	6.43	5.54	2.96	3.61
16-19 years	0	22	2.19	2.63	0	40	6.75	7.51	2.95	4.24
≥20 years	0	56	4.62	6.09	0	67	13.6	15.39	6.12	9.01

6. Conclusion and Implications

The sources of literature review used by the undergraduate and post-graduate students when writing the theses in Agricultural Education were books followed by journals. Researchers are encouraged to use mainly journals as sources of literature because they are more scholarly than books. The number of citations and references in each thesis varied. There were more citations in post-graduate theses than in undergraduate research projects.

Thus, the average number of citations in post-graduate theses is more acceptable compared to that of undergraduate research projects. Another conclusion drawn from the study is that the form of the literature review for both undergraduate and post-graduate students was integrative. The study concluded that in most of the theses or research projects, not all cited sources were in the reference list. Even though the maximum number of citations missing in the reference list was high in both undergraduate and post-graduate theses; but the average number of missing citations in the reference list was not disturbing. The citations of the literature from the students were sourced not from Agricultural Education but from other related discipline. Finally, even though the students from both programmes had new citations; the citations used in the Agricultural Education at UNESWA are generally old.

The findings of the study imply that both undergraduate and post-graduate research projects or theses are not academically strong as the strength of an academic work is measured by the number of scholarly articles, mainly journal articles. Both undergraduate and post-graduate students must be encouraged to write a full literature review than a mini-literature review since this exposes them into full depth and breadth of the issue they are researching. This will be evident in the increased number of citations they will have per thesis. Supervisors need to ensure that the form of literature used in presenting the review of literature is not only integrative but the other forms such as theoretical, systematic, methodological, and so on; are used where appropriate. This will also expose the students to the different forms of presenting the review of literature which they will definitely need in the profession. The findings of the study also imply that efforts must be made to harmonise the list of citations and references in any academic piece of work since some citations may be missing in the reference list. Harmonising the citations and references in a document is necessary if others need to verify or replicate the study. There is a need to strike a balance between the use of citation in the discipline from which the research work is conducted and other related disciplines; since they are all necessary for the growth of the discipline. The conclusions also imply that the arguments made in the discussions and implications of the findings are based on obsolete information since updated or up-to-date sources were sparingly used.

7. Recommendation for action

The Department of Agricultural Education and Extension at the University of Eswatini should revise the guidelines for both undergraduate and post-graduate students such that they incorporate or strengthen issues related to citation and review of literature. For instance, the guidelines should stipulate the amount of old literature say 10 years that must be allowed in research project or theses. Post-graduate students must be encouraged to increase the number of scholarly articles such as journal articles since they are the acid test for academic writing. This is also an indication of exhaustive review of literature. Students must be exposed to all the forms of reporting the review of literature so that they choose the best for their studies. The Agricultural Education students must ensure that they start reviewing literature from Agricultural Education before using sources from other disciplines. This will help them build on what already exist and contribute to the growth of the discipline. Students, supervisor, and examiners must make sure that the cited sources in the documents are also in the reference list. The findings also imply that students must be pushed to consolidate literature from the oldest to the newest so that they report the latest development or information in the subject of interest.

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