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This is the published version of a paper presented at *1st International Conference on Competency-Based Training and Research (ICCBTR), University of Education, Winneba & College of Technology Education, Kumasi, Ghana, 13-15 September, 2017.*

Citation for the original published paper:

Iddris, F. (2017)

Examining the Research output of Lecturers in Selected Public Universities in Ghana.

In: Reynolds Okai (ed.), *1st International Conference on Competency-Based Training and Research* (pp. 208-215).

N.B. When citing this work, cite the original published paper.

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1st INTERNATIONAL CONFERENCE ON COMPETENCY-BASED TRAINING
AND RESEARCH

(ICCBTR-13-15TH September, 2017)

**University of Education, Winneba, College of
Technology Education, Kumasi**

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Examining the Research output of Lecturers in Selected Public Universities in Ghana

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Abstract

The purpose of this study has been to examine the research output of lecturers in public universities in Ghana. A systematic literature review (SLR) was thus conducted to examine (a) productive researchers (b) subject area that attracts more research and (c) the type of research outlets for the teaching staff. Scopus electronic database was searched using the keywords; "University of Education winneba", "Kwame Nkrumah University of Science and Technology", "University of Cape Coast" and "University of Ghana, Legon". Peer-reviewed articles written in English language were considered for the study. The analysis revealed that medicine, agricultural, biological sciences and environmental science contributed to 49% out of 27 subject areas analysed. The conclusion is that researchers in other fields of study need to increase their research output. In addition, As expected the analysis revealed that article constituted the largest type of publication (6477 papers, 85%) and conference paper constitutes the fourth largest publication (243 papers, 3 %). The conclusion is that there is need for more conference paper presentation. Attending conference enables networking, collaborative research, and access to new knowledge, research topics and trends in a particular field of study. The general trend in number of publications indicates that publications from the four universities have been on the increase since 2003.

Keywords: systematic literature review, Ghana, publications, peer-reviewed

Introduction

Since 1950s it had become apparently obvious to policy makers and economic analysts in the western world that sustainable economic growth could be explained by knowledge in the economy and not the traditional indicators such as land, labour, and capital (Philip and Leydesdorff, 2006). Knowledge flow from universities have been found to be important for economic development (Maietta et al., 2017). Thus, there has been pressure on university lecturers to engage in scholarly writing. Academic published works are used to measure

individual, team and institutional performance in a range of different contexts (Kamler, 2008). However, in recent times there has been increasing trend of researchers publishing in predatory journals. According to Adele (2015), African academics and universities have been caught in the predatory journal web. It is therefore important that they address this trend which impact negatively on their integrity. In 2016 Kenya's Commission for University Education issued stringent new guidelines for the appointment and promotion of academic staff. The guidelines emphasised the publication of articles or papers in reputable, peer-reviewed journals and discouraged publications in so-called predatory journals (Kigotho, 2016). In Ghana, there is little research on the research output of lecturers in public universities. With the exception of the work of Frederick Owusu-Nimo (2016) which examined the research output of Ghanaian-affiliated researchers, and the extent and nature of research collaboration, there has not been further research in the area.

Thus the purpose of this paper is to examine the trend of publication of public sector university lecturers by specifically focusing on articles that appear in peer-reviewed journal. This paper will attempt to answer the following research questions.

RQ.1 What are the main types of publications (source document)?

RQ.2 Who are most the productive researchers?

RQ.3 Which subject area attracts more research output from the universities?

The remainder of this paper is structured as follows; first the methodology used in analysis of the selected literature is presented. This is followed by findings, analysis and discussions. Then, the conclusions are presented; this is then followed by limitations and suggestions for further studies.

Methodology

This paper used systematic literature review (SLR) proposed by (Tranfield et al. 2003). A SLR differs from traditional narrative reviews by adopting a systematic process that is scientific, transparent, and replicable (Tranfield, Denyer, & Smart, 2003). We chose Scopus electronic database for the review, the rationale for choosing Scopus was that it covers over 21,500 peer-reviewed journals (including 4,200 full open access journals from over 5000 international publishers. This makes it suitable to search for and locate substantial number of peer-reviewed articles.

Database research searching process

The search was restricted to Scopus electronic database. The SLR process started by using single keywords **University of education winneba**, **Kwame Nkrumah university of science and technology**, **University of cape coast**, and **University of Ghana, Legon**, the search of the database was conducted on the 14th may 2017. The initial search criteria were:

- All year of publication
- English language
- All type of publication (articles, books, review, book chapters.) The database generated 7626 publications from 1961 to early part of 2017 (see Table 3.1).
- The search was limited to articles published by researchers affiliated to four universities (UG, UEW, KNUST and UCC).

Findings, analysis and discussions

The findings of this systematic literature review (SLR) is presented under (1) year of publication, (2) subject area (3) publication type (document source) and (4) productive researcher.

Year of publications

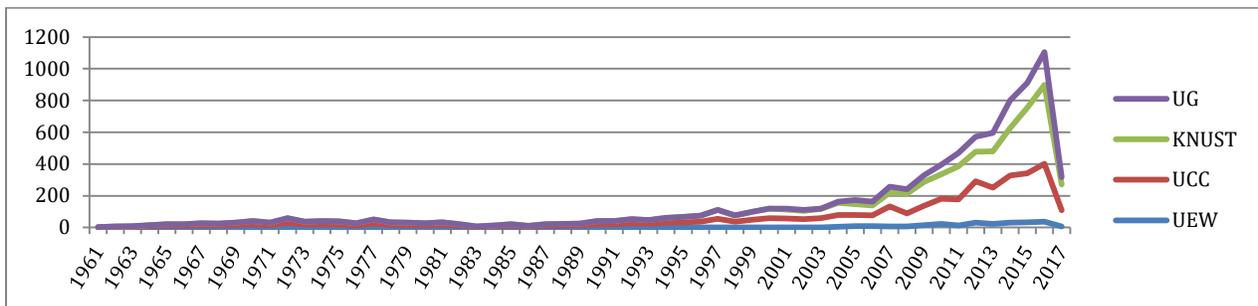


Figure 3.1 shows the yearly publications across the four universities.

The analysis in figure 3.1 shows that UG, UCC and KNUST recorded few publications in early 1960s, while UEW recorded its first publication in 2003. From 2007 there is an increase in publications from the four universities. However, UG shows sharp increase in the number of publications above UEW, UCC and KNUST. The increasing trend in number of publications over the years from the four universities, show the importance of knowledge generation through publications. The general trend in figure 3.1 indicates that even though the publications from the four universities are on the increase UEW lag behind UCC, KNUST and UG.

Publication types from the universities

Table 3.1 shows the various types of publications from the four universities.

Table 3.1 Publication types from the universities

	UEW	UCC	UG	KNUST	Total
Article	203 (3.1%)	1139(17.6%)	2905(44.9%)	2230 (34.4%)	6477
Book chapter	18 (7.0%)	48 (18.8%)	127 (49.6%)	63 (24.6%)	256
Conference paper	10 (4.1 %)	33 (13.6%)	51 (21.0%)	149 (61.3%)	243
Article in press	6 (4.7%)	18 (14.2%)	38 (29.9%)	65 (51.2%)	127
Review	4 (1.3%)	51 (17.1%)	132 (44.1%)	112 (37.5%)	299
Book	2 (2.2%)	4 (4.4%)	21 (23.3%)	63 (70%)	90
Editorial	2 (8.0%)	0 (%)	19 (76.0%)	4 (16.0%)	25
Letter		5 (11.4%)	22 (50.0%)	17 (38.6%)	44
Erratum		3 (18.8%)	5 (31.3%)	8 (50.0%)	16
Note		3 (8.8%)	16 (47.1%)	15 (44.1%)	34
Short survey		1 (6.7%)	8 (53.3%)	6 (40.0%)	15
Total					7626

The analysis in table 3.1 indicates that UG recorded the highest contribution in five categories of the publication type: article (2905,44.9 %), book chapter (127,49.6 %), review (132,44.1 %), letter (22,50.0 %), note (16,47.1 %), and short survey (8,53.3 %). While KNUST recorded the highest contribution in three categories of the publication type: conference paper (149,

61.3%), article in press (65, 51.2%) and book (63, 70.0%). In contrast, UEW recorded the lowest percentage in all of the eleven publication types.

The analysis in Table 3.2 shows that the productive researchers are Amoah, Martin of UEW (14 papers), Essumang, D.K of UCC (50 papers), Koram, K.A of UG (74 papers) and Adu-Sarkodie, Y. of KNUST. (69 papers). It should be noted that the number of publications consists of articles, book chapters, articles in press, review, book, letter, erratum, note and short survey.

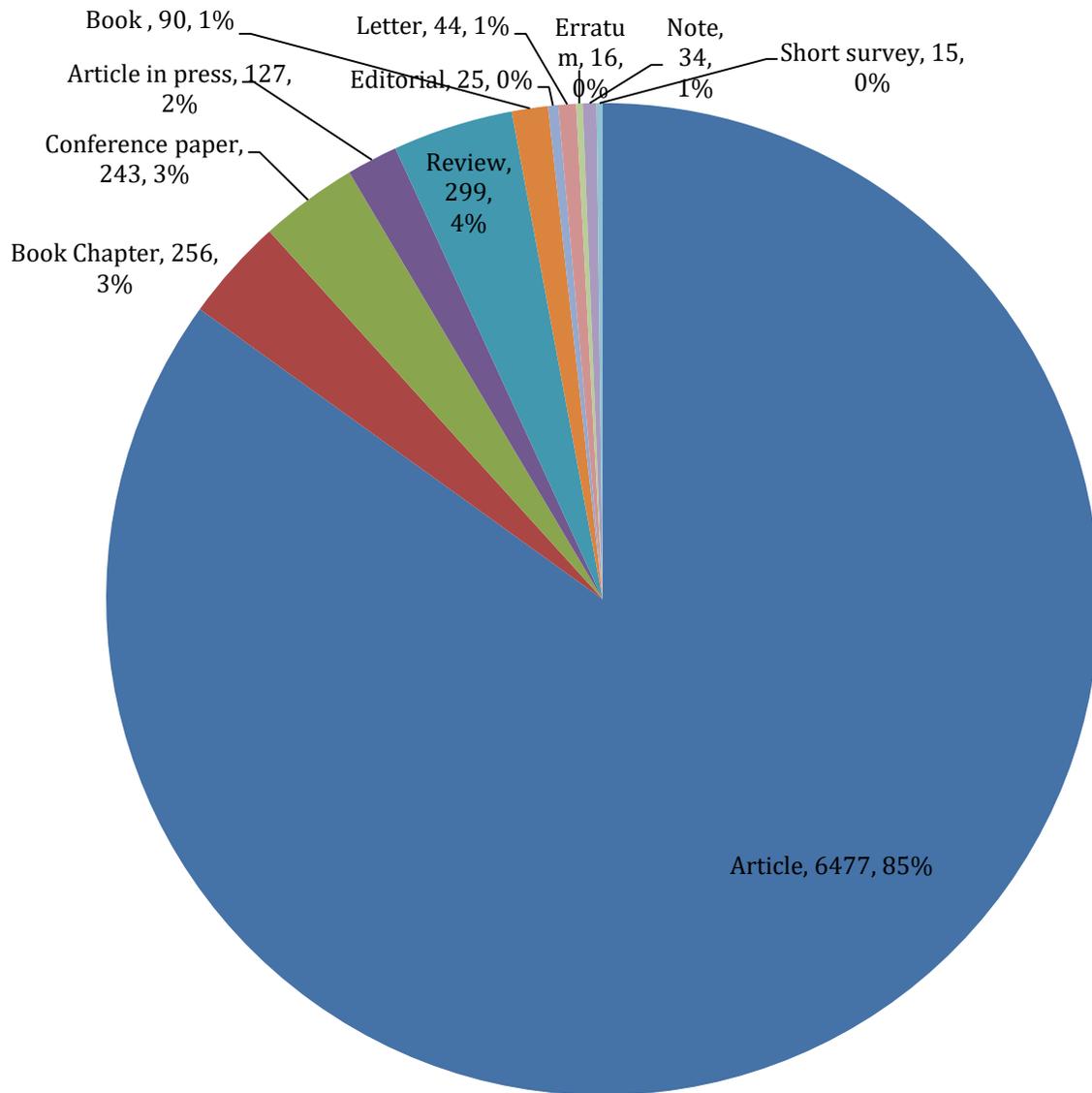


Figure 3.2 Publication types from the universities

Figure 3.2 provides the overall publications from the four universities. The analysis in (Figure 3.2) revealed that article constitutes the largest types of publication (6477, 85%), book chapter (256, 3.35%) and conference paper constitutes the fourth largest publication (243, 3%).

3.3 Productive researchers

Table 3.2 present top 20 productive researchers across the four universities.

Table 3.2 Productive researchers from the four universities

No.	UEW	No. of pub	UCC	No. pub	UG		KNUST	
1	Amoah, M.	14	Essumang, D.K.	50	Koram, K.A.	74	Adu-Sarkodie, Y.	69
2	Ameyaw, Y.	11	Armah, F.A.	34	Boakye, D.A.	63	Owusu-Dabo, E.	65
3	Armor, S.Y.	9	Dodoo, D.K.	32	Akanmori, B.D.	45	Woode, E.	52
4	Nyadanu, D.	9	Boampong, J.N.	31	Sakyi, P.A.	45	Sarfo, F.S.	46
5	Okai, R.	9	Mensah, S.Y.	27	Afoakwa, E.O.	42	Donkor, P.	45
6	Akromah, R.	7	Ameyaw, E.O.	26	Lartey, A.	42	Adjei, O.	41
7	Asabere-Ameyaw, A.	7	Kyei, S.	25	Nyarko, A.K.	37	Phillips, R.O.	53
8	Danso, H.	7	Amo-Adjei, J.	23	Alemnna, A.A.	36	Agbenyega, T.	40
9	Dadzie, P.K.	7	Buah-Bassuah, P.K.	19	Addae-Mensah, 1.	35	Ansong, D.	38
10	Frimpong-Mensah, K.	7	Mensah, N.G.	19	Wilson, M.D.	35	Bedu-Addo, G.	38
11	Oppong, E.K.	7	Obiri, S.	19	Dodoo, D.	34	Plange-Rhule, J.	38
12	Agyarko, K.	6	Turkson, P.K.	19	Yidana, S.M.	34	May, J.	33
13	Lowor, S.T.	6	Abane, A.	18	Yeboah-Manu, D.	33	Mock, C.	33
14	Raheem, K.	6	Teye, E.	18	Armah, G.E.	43	Tagbor, H.	33
15	Amedeker, M.K.	5	Ephraim, R.K.D.	17	Agyei-Mensah, S.	30	Gyedu, A.	32
16	Djang-Fordjour, K.T.	5	Kumi-Kyereme, A.	17	Sakyi-Dawson, E.	29	Horstmann, R.D.	32
17	Ofosu-Kusi, Y.	5	Awusabo-Asare, K.	16	Aikins, M.	28	Akoto, O.	30
18	Ababio, P. F.	4	Flampshire, K.	15	Bosompem, K. M.	28	Hoerauf, A.	30
19	Abotsi, A.K.	4	Porter, G.	15	Hviid, L.	28	Sarpong, N.	30
20	Adomako, B.	4	Afoakwah, R.	14	Nkrumah, F.K.	28	Debrah, A.Y.	28

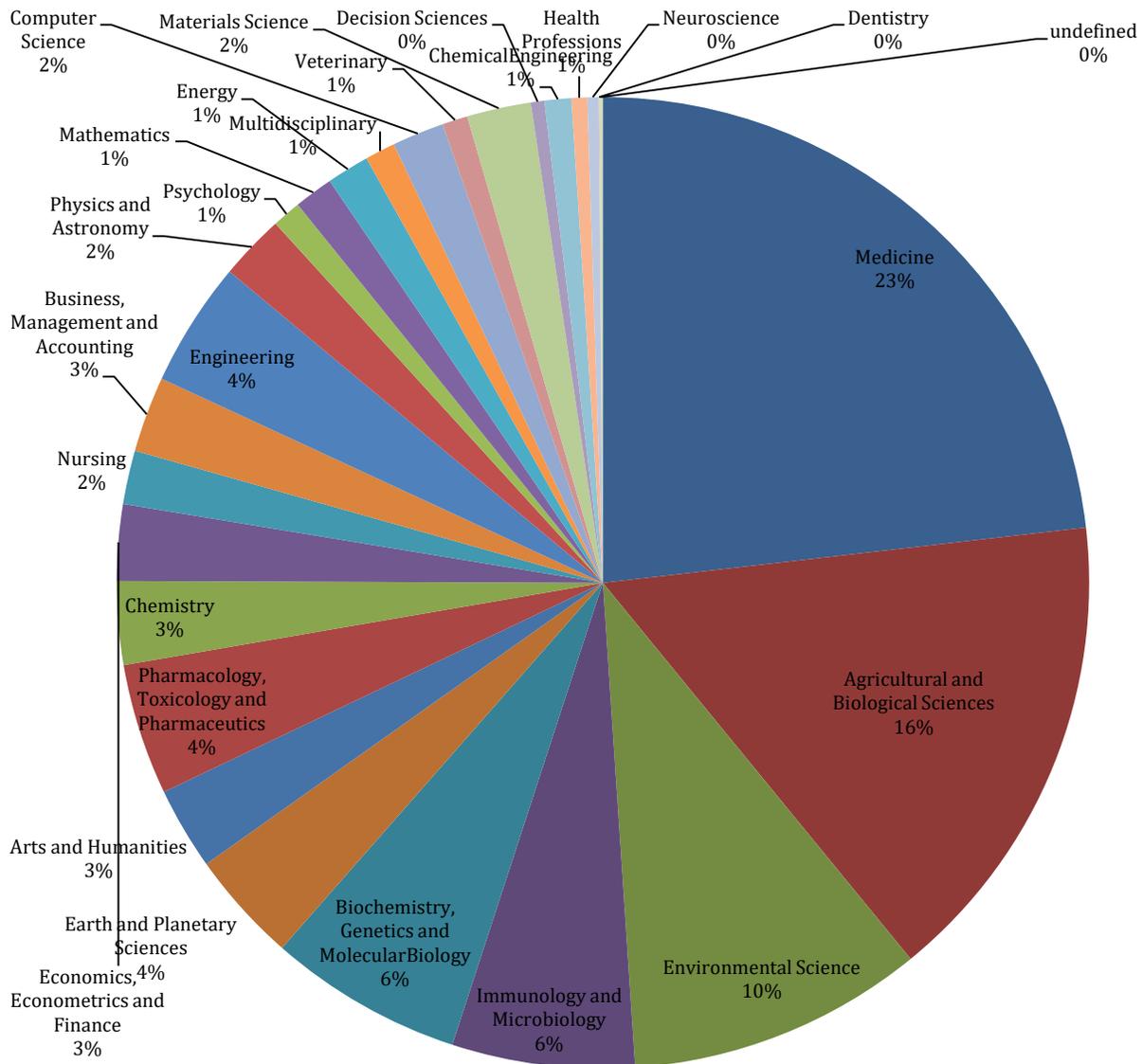


Figure 3.2 subject area

From the papers analysed (see figure 3.2) the largest contribution comes from medicine (23 %), this is followed by agricultural and biological sciences (16 %) and environmental science (10%). The results in figure 3.2 clearly shows that medicine, agricultural and biological sciences and environmental science contributes (5821, 49%) of the total publications from 1961 to 2017. The skewed number of publications across the subject raises several questions as to whether researchers from other fields are less productive than those from medicine, agricultural and biological sciences and environmental science or there is a general lack research competence which led to few publications. For example, the subject area of business, management and accounting accounted for only 3% of the total publications. This percentage is extremely low compared to number of business courses run in the four universities. Table 3.1 shows the detail breakdown of the subject area from the four universities.

Table 3.1 Subject area and percentage of publications from UEW, UCC, UG and KNUST

Subject area	UEW	UCC	UG	KNUST	Total
Medicine	12 (0.5%)	333 (13.4%)	1081 (43.4%)	106(42.8%)	2493
Agricultural and Biological Sciences	52 (3.0%)	268 (15.7%)	899 (52.5%)	492 (28.8%)	1711
Social Sciences	112 (6.9%)	353 (21.8%)	783 (48.4%)	369 (22.8%)	1617
Environmental Science	29(2.7%)	176 (16.6%)	451 (42.6%)	403 (38.1%)	1059
Immunology and Microbiology	2 (0.3%)	78 (11.9%)	373 (57.1%)	200 (30.6%)	653
Biochemistry, Genetics and MolecularBiology	16 (2.3%)	107 (15.4%)	322 (46.4%)	249 (35.9%)	694
Earth and Planetary Sciences	1 (0.3%)	37 (9.3%)	245 (61.4%)	116 (29.1%)	399
Arts and Humanities	16 (5.4%)	68 (23.1%)	166 (56.3%)	45 (15.3%)	295
Pharmacology, Toxicology and Pharmaceutics	3 (0.6%)	73 (14.5%)	162 (34.5%)	232 (49.4)	470
Chemistry	8 (2.7%)	64 (21.5%)	135 (45.3%)	91 (30.5%)	298
Economics, Econometrics and Finance	13 (4.8%)	48 (21.5%)	129 (47.3%)	83 (30.4%)	273
Nursing	0 (0.0%)	18 (9.4%)	104 (54.2%)	70 (36.5%)	192
Business, Management and Accounting	11 (4.1%)	85 (31.4%)	92 (33.9%)	83 (30.6%)	271
Engineering	30 (6.7%)	61 (13.6%)	92 (20.5%)	265 (59.2%)	448
Physics and Astronomy	3 (1.3%)	82 (35.0%)	76 (32.5%)	73 (31.2%)	234
Psychology	10 (9.7%)	18 (17.5%)	61 (59.2%)	14 (13.6%)	103
Mathematics	3(2.1%)	33 (23.6%)	57 (40.7%)	47 (33.6)	140
Energy	8(5.3%)	22 (14.5%)	51 (33.6%)	71 (46.7)	152
Multidisciplinary	3(2.8%)	12 (11.1%)	51 (47.2%)	42 (38.9)	108
Computer Science	13(7.0%)	37 (19.9%)	50 (26.9%)	86 (46.2)	186
Veterinary	1(1.1%)	21 (23.1%)	47 (51.6)	22 (24.2)	91
Materials Science	14 (6.1%)	56 (24.5%)	36 (15.7)	123 (53.7)	229
Decision Sciences	3 (6.3%)	8 (16.7%)	22 (45.8)	15 (31.3)	48
ChemicalEngineering	2 (2.1%)	21 (21.9%)	21 (21.9)	52 (54.2)	96
Health Professions	4 (7.1%)	13 (23.2%)	18 (32.1)	21 (37.5)	56
Neuroscience	0 (0.0%)	10 (25.0%)	12 (30.0)	18 (45.0)	40
Dentistry	0 (0.0%)	0 (0.0%)	3 (100.0)	0 (0.0)	3
Undefined	0 (0.0%)	7 (58.3%)	4 (33.3)	1 (8.3)	12
Total	369	2109	5543	4350	12,371

The analysis in Table 3.1 shows that both KNUST (1067,42.8 %) and UG (1081, 43.4 %) contributed to almost the same number publications in medicine. While UCC contributed to (333, 13.4%) and UEW (12, 0.5%). In the subject area of dentistry there was no publication from all the universities with the exception of UG that produced the only 3 articles. The analysis shows the contribution of article in the subject area of business, management and accounting from the universities as follows: UCC (85, 31.4%), KNUST (83, 30.6%), UG (92, 33.9%). KNUST's contribution in business, management and accounting subject areas is quite impressive since the university can be considered as late comer in the field of business education.

4. Conclusion

The purpose of this research has been to systematically review the research output of lecturers in public universities in Ghana. This systematic literature review (SLR) adds novelty in the knowledge generation from public universities in Ghana.

To answer the first research question, what are the main types of publication? As expected the

analysis revealed that article contributed the largest type of publication (6477, 84.9%). Conference papers contributed the fourth largest publication type (243, 3.1 %). However, there is need for more conference paper presentation as it enable networking, collaborative research, access to new knowledge, research topics and trends in a particular field of study.

To answer the third research question RQ3, *which subject area attracts more research output?* The analysis revealed that medicine, agricultural and biological sciences and environmental science contributed to 49% of the total publications. This means that the contribution of other subject areas is low. Thus, there should conscious effort from authorities and researchers in other subject areas to increase their research out to ensure even distribution iin terms of knowledge generation. Only 3 articles were produced in the field of dentistry, all coming from UG. Also, it is interesting to find that the field of business, management and accounting accounted for only 3% of the total publications (see figure 3.1). This figure does not correlate with number of business and management programmes run in the public universities in Ghana. Thus, researchers in the field of business, management and accounting need to contribute to knowledge generation by producing and publishing in peer-reviewed journals. Overall, the analysis revealed increase in publication output from the four universities. This is positive development for context specific knowledge production. Thus, policy makers and university authorities need to create conducive environemnt that supports context specific knowledge development and accumulation which is useful for social and economic development.

4.1 Limitations and suggestions for further studies

The major limitation of this study is the use of Scopus electronic database as the only source of peer-reviewed articles for the analysis. There are equally important electronic database such as Web of Science and ABI/Global inform which was ignored in this study. Secondly, the study focused on four universities, further studies may extend to other public universities in Ghana. Thirdly, this study presents descriptive analysis of the publication output; further studies may examine the difference in publication outputs across the universities using qualitative approach. The use qualitative research will enables researcher(s) to gain in-depth understanding of the descriptive analysis of this study.

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