



Mapping of Soccer Research through Publications Output - A Study of Global Level during 2009-2013

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Abstract

Soccer is one of the most popular sports in the world in terms of spectator sports and participation of players. Soccer, commonly known as Association football or football, which is played than more than 250 million players in over 200 countries around the globe. This study attempts to mapping of soccer research through publications output in the global literature, which is available in the electronic form using mapping technique. The data for this study were retrieved from the Web of science database. Using search string in Web of science, the term 'Soccer' in 'article title, abstract and keywords' published in 2009 - 2013 years and all types were analyzed. The large number of soccer publications was in the year 2013, maximum of 1092 publications are brought out with the total global citation of 1337 which includes 148 local citation scores in soccer. The study indicates that publications in soccer was observed in 86 countries and United States of America top the list and it was followed by United Kingdom. The result reveals that University of Copenhagen had contributed high number of literature in soccer. The result reveals out of 12 languages, English has used 3823 literature and stood first among the all source languages. The analysis reveals that 'article' has constituted 3401 of total documents of source, followed by 'Meeting Abstract'. Among all authors globally "Krustrup" has published 49 items in soccer literature and the top contributor in soccer with a citation score of 399. Journal of strength and conditioning research has published maximum of 349 publications in soccer. From this study, it was concluded that more works on soccer should be encouraged nationally throughout the country. To preserve the information and to enhance the academic excellence globally, literature in soccer should be in electronic form.

Keywords: Mapping, Database, Soccer.

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Introduction

Soccer is one of the most popular sports in the world in terms of spectator sports and participation of players. Soccer, commonly known as Association football or football, which is played than more than 250 million players in over 200 countries around the globe. The game is played on a rectangular field of grass or green artificial turf, with a goal in the middle of each of the short ends. The object of the game is to score by driving the ball into the opposing goal.

In general play, the goalkeepers are the only players allowed to touch the ball with their hands or arms, while the field players typically use their feet to kick the ball into position, occasionally using their torso or head to intercept a ball in midair. The team that scores the most goals by the end of the match wins. If the score is tied at the end of the game, either a draw is declared or the game goes into extra time and/or a penalty shootout, depending on the format of the competition. The Laws of

the Game were originally codified in England by the Football Association in 1863 and have evolved since then. Association football is governed internationally by FIFA, which organises the FIFA World Cup every four years. A Citation Map is a graphical representation that shows the citation relationships (cited references and citing articles) between a paper and other papers using various visualization tools and techniques. This paper attempts to give a complete profiling of the literature on 'soccer'. Increasingly mapping and bibliometrics are being used as a measure of research impact or research influence. Bibliometrics analyses quantitative and qualitative data to describe publication patterns within a field of research. This information can be used to evaluate the influence/performance of a researcher and to provide a comparison between researchers. More broadly, speaking the results also help to determine university rankings and have an impact on university funding. The purpose of the present study was to mapping of soccer research through publications output in the global literature.

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Database and Methodology

Web of science is a bibliographic database containing abstract and citations of peer-reviewed literature. Web of science, is a bibliographic database which contains abstract and citations for academic journal articles. According to web of knowledge database, it covers nearly more than 70,000 titles from over 20,000 international publishers, of which 20,000 are peer-reviewed journals in the scientific, technical, medical and social sciences. Web of science is owned by

Thomson Reuters and is available in online by subscription. The data for this study were retrieved from the Web of science database. Using search string in Web of science, the term 'Soccer' in 'article title, abstract and keywords' published in 2009 - 2013 years and all types were analyzed. In all, 4020 documents results were found in web of science database. With the assistance of analyse result option, the data for analyse were collected. Using illustrations in the form of table, the result of the study were discussed broadly.

Table I. Publications output on soccer for the study period

S.No	Output	Totals
1	Total Publications	4020
2	Total Authors	10516
3	Total Languages	12
4	Total Institution	3185
5	Total Countries	86
6	Total Journals	892

The above table lists the data which were downloaded from the source database web of Science. It could reveal that 4020 publications, written by 10516

authors, from 3185 institutions located in 86 countries, which are published in 892 journals in 12 languages across the globe.

Table II. Year-wise classification of Soccer literature

S.No	Publication Year	Records	(%)	TLCS	TGCS
1	2009	<u>525</u>	13.1	2045	6576
2	2010	<u>504</u>	12.5	1270	4303
3	2011	<u>872</u>	21.7	1405	4988
4	2012	<u>1027</u>	25.5	593	3129
5	2013	<u>1092</u>	27.2	148	1337

TLCS= Total Local Citation Score TGCS= Total Global Citation Score

In Web of science, literature pretended to soccer was limited to the period 2009-2013 only. From the above table, it was found that the total numbers of document available was 4020. In the year 2013, maximum of 1092 documents are published in soccer.

The analysis also reveals that steady increase in the productivity was observed during the study period. It could also been observed that on increased growth in terms of citations over the period of study.

Table III. Country-wise distribution of publications in soccer

S.No	Country	Records	(%)	TLCS	TGCS
1	USA	<u>870</u>	21.6	842	5375
2	UK	<u>645</u>	16.0	1411	4053
3	Australia	<u>387</u>	9.6	911	2923
4	Spain	<u>318</u>	7.9	401	1671
5	Brazil	<u>259</u>	6.4	119	508
6	Germany	<u>257</u>	6.4	221	1148
7	Italy	<u>225</u>	5.6	536	1695
8	France	<u>169</u>	4.2	510	1102
9	Canada	<u>168</u>	4.2	251	899
10	Netherlands	<u>150</u>	3.7	190	849

TLCS= Total Local Citation Score TGCS= Total Global Citation Score

In present study, out of 86 countries, which had published atleast one literature in soccer were analysed and top ten 'Nation List' along with the productivity in terms of number of publications are presented. United States of America top the list with 870 publications with

5375 global citations and 842 local citation scores, followed by United Kingdom with 645 publications. No Asian Nation was in the top ten list. India were placed in 46th position with 9 Publication in soccer of which, is meager number of publications.

Table IV. Top ten institutions in publishing soccer literature

S.No	Institution	Records	(%)	TLCS	TGCS
1	University of Copenhagen	63	1.6	302	631
2	Liverpool John Moores University	61	1.5	243	609
3	Ohio State University	60	1.5	104	603
4	University of Porto	58	1.4	55	145
5	Victoria University	57	1.4	145	442
6	Norwegian School of Sport Science	53	1.3	151	474
7	University Sao Paulo	51	1.3	36	152
8	University of Exeter	49	1.2	85	233
9	University of Groningen	46	1.1	104	258
10	University of Loughborough	46	1.1	97	301

TLCS= Total Local Citation Score TGCS= Total Global Citation Score

The analyses of institution-wise distribution have been contributed by 3185 institutions around the globe. The researchers had taken top ten productivity institution for this analysis. By seeing the analysis, University of Copenhagen (63) top the list followed by Liverpool John Moores University (61). Among the top

ten institutions in the globe, no Asian Nation was in the top ten lists pertaining to the publications output in soccer. Top 3 higher productive institutions have got more citations as 631, 609 and 605 respectively, while there is fluctuation in terms of citation scoring among the remaining institutions.

Figure I. Mapping of Institutions Productivity

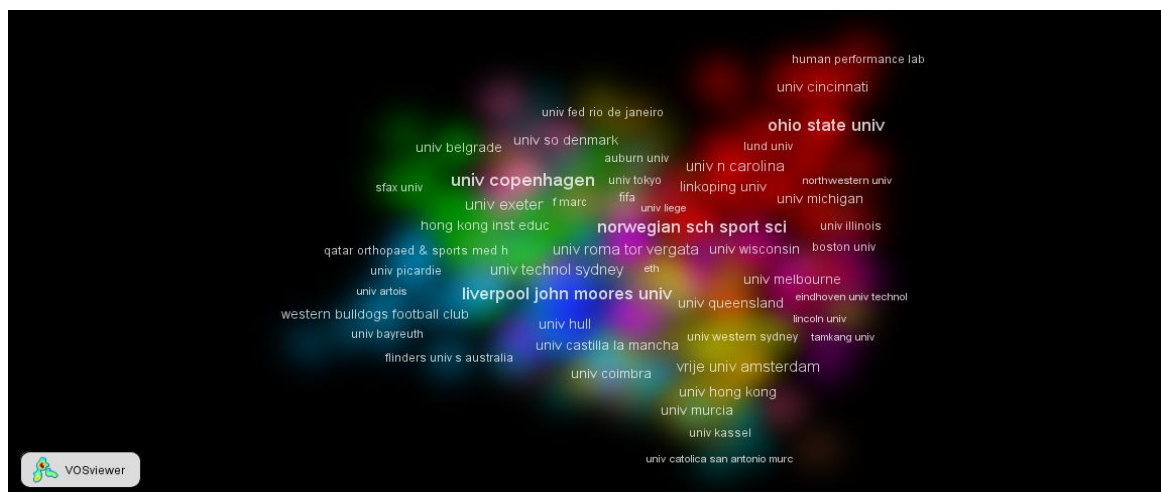


Table V. Language-wise distribution of publications

S.No	Languages	Records	(%)	TLCS	TGCS
1	English	3823	95.1	5425	20167
2	Portuguese	67	1.7	7	46
3	Spanish	59	1.5	14	60
4	German	44	1.1	13	43
5	French	17	0.4	2	15
6	Italian	3	0.1	0	1
7	Japanese	2	0.0	0	1
8	Afrikaans	1	0.0	0	0

9	Croatian	<u>1</u>	0.0	0	0
10	Dutch	<u>1</u>	0.0	0	0
11	Icelandic	<u>1</u>	0.0	0	0
12	Korean	<u>1</u>	0.0	0	0

TLCS= Total Local Citation Score **TGCS**= Total Global Citation Score

It could be noted that soccer scientist used to bring out their publication in different type of languages. The present investigation had taken published languages,

which published soccer literature. Out of 12 languages, English has used 3823 literature and stood first among the all source languages.

Table VI. Document-wise distribution of publications

S.No	Document Type	Records	(%)	TLCS	TGCS
1	Article	<u>3401</u>	84.6	4936	17579
2	Meeting Abstract	<u>229</u>	5.7	0	5
3	Review	<u>199</u>	5.0	411	2138
4	Editorial Material	<u>75</u>	1.9	29	150
5	Article; Proceedings Paper	<u>34</u>	0.8	60	341
6	Letter	<u>33</u>	0.8	9	56
7	Book Review	<u>30</u>	0.7	0	0
8	Correction	<u>9</u>	0.2	0	0
9	News Item	<u>5</u>	0.1	1	8
10	Review; Book Chapter	<u>4</u>	0.1	15	56
11	Reprint	<u>1</u>	0.0	0	0

TLCS= Total Local Citation Score **TGCS**= Total Global Citation Score

The result indicates that soccer literature has been classified into eleven types of documents. The above table indicates the numerical values of each document. The analysis reveals that ‘article’ has constituted 3401 of total documents of source, followed by ‘Meeting Abstract’. Out of 4020 documents on

soccer, more than 84.60% were in the form of ‘article’ type. The remaining documents of source were in meeting abstract, review, editorial material, proceeding papers, letter, book review, correction, news item, Review; book chapter and reprint are having 15.40%.

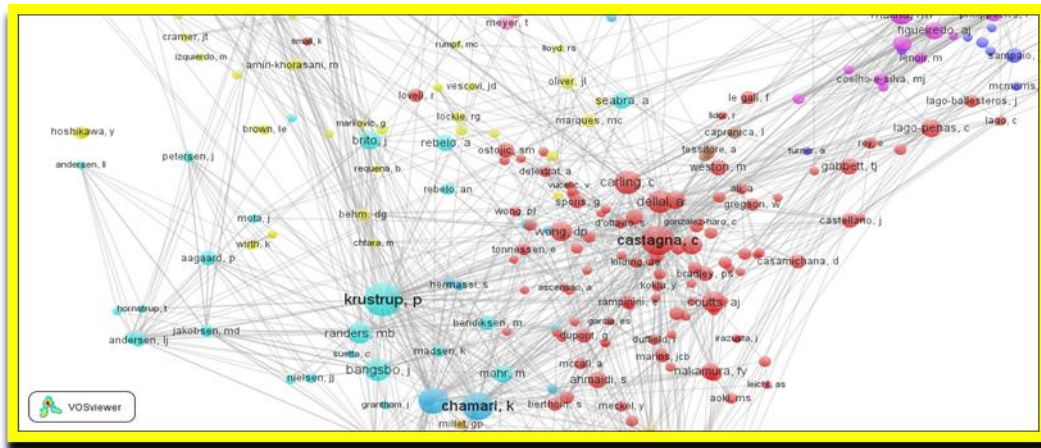
Table VII. Top ten contributing authors

S.No	Author	Records	(%)	TLCS	TGCS
1	Krustrup P	<u>49</u>	1.2	223	399
2	Castagna C	<u>45</u>	1.1	338	617
3	Buchheit M	<u>41</u>	1.0	200	469
4	Chamari K	<u>40</u>	1.0	193	398
5	Chaouachi A	<u>38</u>	0.9	126	290
6	Dvorak J	<u>32</u>	0.8	94	285
7	Dellal A	<u>28</u>	0.7	122	236
8	Ekstrand J	<u>28</u>	0.7	189	356
9	Carling C	<u>27</u>	0.7	141	236
10	Malina RM	<u>27</u>	0.7	96	177

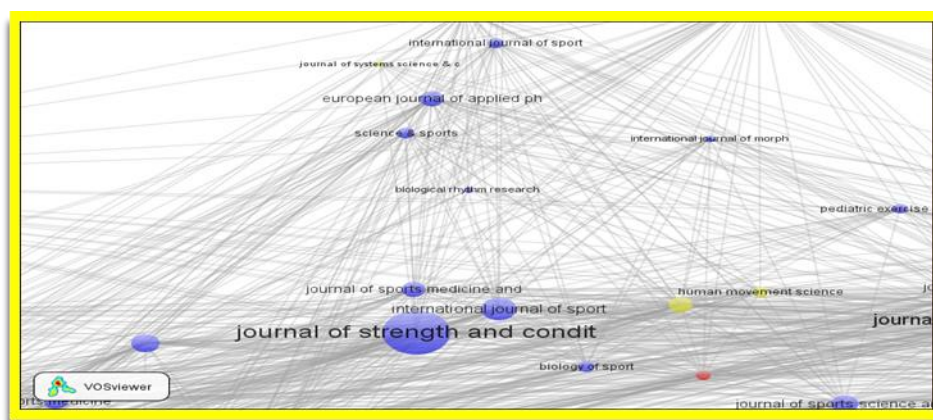
TLCS= Total Local Citation Score **TGCS**= Total Global Citation Score

By analyzing the authorship pattern, at global level more than 25,000 authors have participated in publishing in soccer. The above table shows the top ten authors productivity on soccer. It also indicates the number of works done by each of them Krustrup has

published 49 items in soccer literature and the top contributor in soccer with a citation score of 399. The second major contributor Castagna for published 45 articles with a highest citation score 617.



S.No	Journal	Records	(%)	TLCS	TGCS
1	Journal of Strength and Conditioning Research	349	8.7	709	2076
2	Journal of Sports Sciences	196	4.9	673	1615
3	Medicine and Science in Sports and Exercise	186	4.6	59	323
4	British Journal of Sports Medicine	119	3.0	405	1284
5	American Journal of Sports Medicine	101	2.5	409	1617
6	International Journal of Sports Medicine	96	2.4	333	857
7	Scandinavian Journal of Medicine & Science in Sports	71	1.8	301	656
8	Journal of Human Kinetics	60	1.5	21	117
9	Journal of Science and Medicine in Sport	58	1.4	337	697
10	International Journal of Sports Physiology and Performance	55	1.4	196	430



Findings

1. The large number of soccer publications was in the year 2013, maximum of 1092 maximum of 1092 publications are brought out with the total global citation of 1337 which includes 148 local citation scores in soccer.
2. The study indicates that publications in soccer was observed in 86 countries and United States of America top the list and it was followed by United Kingdom.
3. The result reveals that University of Copenhagen had contributed high number of literature in soccer.
4. The result reveals out of 12 languages, English has used 3823 literature and stood first among the all source languages.
5. The analysis reveals that 'article' has constituted 3401 of total documents of source, followed by 'Meeting Abstract'.
6. Among all authors globally "Krustrup" has published 49 items in soccer literature and the top contributor in soccer with a citation score of 399.
7. Journal of strength and conditioning research has published maximum of 349 publications in soccer.

Conclusions

Scientific research assessment studies are very much imminent for any subject domain. Accordingly the research traits in physical education and sport sciences are also gaining momentum in the recent past at for with other scientific subjects. It paves the ways and means for

enhanced professionalism in sports and games. Even then many are the Asian nations are comparatively fairly performing in terms of publishing research output in scientific resources. From this study, it was concluded that more works on soccer should be encouraged nationally throughout the country. To preserve the information and to enhance the academic excellence globally, literature in soccer should be in electronic form.

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