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**Media Literacy and its Significance for the Past One Decade: A Study of Literature
Published by SpringerLink Database through Bibliometric Lens**

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Abstract: The present paper seeks to review the literature, through bibliometric lens, published by SpringerLink for the past decade on the concept ‘media literacy’. This study provides a detailed concept and definition of media literacy and review of related literature. The bibliographic details retrieved from SpringerLink database (<https://link.springer.com>) by using keywords such as ‘media literacy,’ ‘media’, ‘literacy’. The bibliographical details of literature published were recorded in MS-Excel 2007 sheet. The paper shows that during 2011-2020, different categories of literature have been published and Chapter has occupied the most literature published by Springer Link. This paper also reveals that ranking of journal, authorship pattern, citation and altmetric pattern and country-wise distribution of literature etc. The Annual Growth Rate (AGR), Cumulative Growth Rate (CGR), Compound Annual Growth Rate (CAGR) Relative Growth Rate (RGR), Doubling Time of literature followed by the indicators such as degree of collaboration; collaboration coefficient; and collaborative index have been calculated and presented.

Keyword: Media literacy; Bibliometrics; Degree of Collaboration (DC); Annual Growth Rate (AGR); Relative Growth Rate (RGR); Doubling Time (DT); and Collaboration Coefficient (CC).

1. Introduction

The world is revolving with the need of hours. The concept of needs and requirements is dynamic in nature and its keep changing with the flow of time. Information and communication technology plays a significant role in the modern day life. The society is demanding the various types of information in various modern ways. One of the key factors to be noted is to use and equipped with the modern technology advancement. Information Literacy is a major driving force for the people to develop skills and abilities in combating the modern technological peripheral. In other word Information literacy can be define as a set of skills and abilities requiring individuals to recognize when information is needed and where to locate sources of information, access, evaluate, use information in critical thinking and use information more effectively and effectively (Oviatt, 2010).

According to the centre for Media Literacy “Media Literacy is a 21st century approach to education it provides a framework to access, analyse, evaluate and create and participate with messages in a variety of forms- from print to video to the Internet Media Literacy builds an understanding of the role of media in society as well as essential skills of inquiry and self - expression necessary for citizens of a democracy”. Media Literacy can also be defined as ability

to access, analyse and evaluate the various types of messages presented through mass media. The present study mainly seeks to understand the term media literacy which refers to understand various media functions and ability to use media tools, creating media content, critical evaluating media structure, create and act using all forms of communication (National Association for Media Literacy Education, 2010).

Thus we can point out that in the past few decades, the concept media literacy refers to the ability of reading and writing, now a days media literacy is not only ability to read and write. To understand the concept, instruction, function, way of communication, the ability and usefulness of various medium of communication channel (Hobbs, 2008).

2. Previous Studies on Concept

For the purpose of having a deep understanding of the concept of “Media Literacy”, the following literature has been reviewed. Durak & Saritapeci (2019) studied the increasing problems of internet usage among high school students and find out that three important order of the variables as social media such as usage status, social media usage purposes and new media literacy. Boruah (2019) in her study has analysed and evaluate different dimensions of the critical relationship among media, culture and society. He also emphasizes the importance of critical media literacy in the media education curriculum. Through the study of postgraduate students of Assam, teaching learning practice are more focused on understanding media as a medium, students are learning how to create media contexts, analysing and evaluating media content. Kumar, Singh and Ranjan (2018) measure the research output of Indian Institute Technology (IITs) in quantitative manner as appeared in Web of Science (WoS) database from 1989 – 2018. Kumar (2017) in his paper conducted a literature survey on consortia published by Emerald where he explored the growth of literature on the concept and provided a readymade bibliography as well. Lesley (2017) conducted a research study on sexualised media and critical media literacy and review of education curriculum in the Australia and United States. His finding revealed that the lack of education out media and children are adopting negative sexualised attitudes, beliefs and behaviours in the media. Austin & Pinkleton (2016) studied about the effect and important of media literacy in the young people thinking skills and finds that it has strong potential and they also suggested that to conduct more media literacy training programs to the specific needs of the members. Gretter & Yadav (2016) studied developing 21st century skills, creativity critical thinking and problem solving in our globalization and ICT society. In their finding the advancement and accessibility of computing technologies has a great impact on the students and people. Zhang & Zhu (2016) examine the digital media literacy of primary school students of 5th and 6th grade in Beijing. The finding are most of the students in the 5th and 6th grade have high critical thinking understanding and technical skills. Digital media literacy has a great impact and influenced in the students. Peek & Beresin (2015) conducted a study on ‘How Reality Television Can Affect Youth and How a Media Literacy Curriculum Can Help’. They believed that some television programme and media image have a negative impact on youth and adolescence. They also suggested that to develop media literacy curriculum such as counselling, media literacy skills for their residents, educators and health professionals.

3. Study Objectives

Looking into the emerging area of research and its significance with growth of literature for the past decade, it was decided to carry out a bibliometric analysis of scientific output in this particular area. The main objectives of the study were to:

1. Look into the growth of literature on 'Media Literacy' published by Springer Link during 2011-2020;
2. Study categorise-wise and year-wise distribution of literature followed by examining the geographical distribution of literature;
3. Find out the most prominent journals, publisher-wise and country-wise distribution of literature;
4. Study authorship, citation and altmetric pattern of literature published by SpringerLink; and
5. Determine the annual growth rate (AGR), compound annual growth rate (CAGR), relative growth rate (RGR) and doubling time (DT) of the publications followed by the degree of collaboration, collaborative index (CI).

4. Scope and Methodology of the Study

The present study is to put an eye upon the literature published by SpringerLink on media literacy over the past one decade through bibliometric lens. The aim of the study is to examine the literature published on media literacy by SpringerLink from 2011-2020. In this study, the attempt is being made to review the literature published in on "media literacy" during the period of 2011-2020 through bibliometric lens by applying its metrics. The retrieved bibliographic details and literature published were collected from SpringerLink database (<https://link.springer.com>). All the required bibliographical data were retrieved by using advanced search technique with keywords such as 'media literacy', 'media', 'literacy' etc. In addition, wherever the term 'Media Literacy' appeared in title or keywords were selected for the study. Then the bibliographical details of literature published were recorded in MS-Excel 2007 sheet for the analysis and interpretation of data. These gathered data were analysed and presented in different tables as shown below in analysis and interpretation part. In analysis part, the Annual Growth Rate (AGR), Cumulative Growth Rate (CGR), Compound Annual Growth Rate (CAGR), Relative Growth Rate (RGR), Doubling Time (DT) of literature followed by the indicators such as degree of collaboration; collaboration coefficient; and collaborative index have also been calculated and presented.

5. Data Analysis & Interpretation

For the purpose of data analysis and interpretation of the study, the data has been collected entirely from Springer data base for last one decade i.e. 2011-2020. The entire data were review on the basis of some categories like category wise distribution of literature, year-wise pattern, ranking of journal, author's pattern, country-wise distribution and likewise. The application software i.e. MS-Excel 2007 was used for the analysis of data and represents this data in tabular form along with the diagram. The analysis of the data and its interpretation are shown in the following manners:

Categorise-wise Distribution of Literature

Table 1: Categorise-wise Distribution of Literature Published

S.N.	Categories of Literature	Literature (no.)	Cumulative No. of Literature	%	Cumulative Percentage	Rank
1	Chapter	1772	1772	57.36	57.36	1
2	Article	717	2489	23.22	80.58	2
3	Conference Paper	324	2813	10.49	91.07	3
4	Reference Work Entry	272	3085	8.81	99.88	4
5	Book	4	3089	0.12	100	5
	Total	3089				

The Table 1 represents categorise-wise distribution of literature published in the Springer database with a total of 3089 number of literature. It can be observed that 57.36% (1772) of the chapter has the highest number of literature which is followed by article with 23.22% (717). The Conference paper, reference work entry and book has 10.49% (324), 8.81% (272) and 0.12% respectively in their respective category.

Year-wise Literature

Table 2: Year-wise Literature Published

Year	Literature (in no.)	Cumulative growth rate	Percentage	Cumulative %	Rank
2011	158	158	5.12	5.12	10
2012	189	347	6.12	11.24	9
2013	215	562	6.96	18.20	8
2014	320	882	10.36	28.56	5
2015	294	1176	9.52	38.08	7
2016	331	1507	10.71	48.79	4
2017	366	1873	11.85	60.64	3
2018	311	2184	10.06	70.70	6
2019	437	2621	14.15	84.85	2
2020	468	3089	15.15	100	1
	Total	3089			

The table 2 represent year-wise distribution of literature published in the subject of Media Literacy from the period of 2011 – 2020. It is observed that the literature keeps increasing in constant speed with 468 (15.15%) which rank as the highest number of literature published in 2020. It is followed by the year 2019 which is rank second in the list with a cumulative growth of 84.85% (437). The year 2011 has the least number of publication with percentage of 5.12 % (158). Likewise the year 2012, 2013, 2014, 2015, 2016, 2017 and 2018 has 6.12%, 6.96%, 10.36%, 9.52%, 10.71%, 11.85% and 10.06% respectively.

Annual Growth Rate (AGR) of Publications

The annual growth of literature has been occupied a significant position in marking a bridge to evaluate the number of publication published in field of media literacy. A proper mechanism technique is being applied to understand the importance of annual growth rate of publication. A formula has been applied which was used by Kumar and Kaliyaperumal, 2015 to calculate AGR for the period of 2011-2020. The formula is:

$$\text{AGR} = \frac{\text{end value} - \text{first value}}{\text{first value}} \times 100$$

Table 3: Growth Rate of Publications

Year	Literature (in no.)	Cumulative growth	AGR (Annual growth rate)	CAGR (%) (compound annual growth rate)	RGR (relative growth rate)	DT (Doubling time)
2011	158	158	-	-	-	-
2012	189	347	19.62	83.59	0.78673	0.88086
2013	215	562	13.75	61.55	0.48218	1.43722
2014	320	882	48.84	40.10	0.45069	1.53764
2015	294	1176	-8.125	41.42	0.28768	2.40892
2016	331	1507	12.59	35.39	0.24800	2.79435
2017	366	1873	10.57	31.24	0.21742	3.18737
2018	311	2184	-15.03	32.10	0.15362	4.51113
2019	437	2621	40.51	25.07	0.18240	3.79934
2020	468	3089	7.09	23.32	0.16429	4.21815

In Table 3, the annual growth rate of publication is being presented from 2011-2020. It is seen from the table that the year 2014 has the highest number of annual growth rate with 48.84. It is followed by 2019 with 40.51 annual growth rates. The year 2015 has the least number of annual growth rate with -8.125.

Compound Annual Growth Rate (CAGR):

To understand the compound annual growth rate (CAGR) of the total publication from 2011-2020, the following formula has been used which was earlier implemented by Kumar and Kaliyaperumal in 2015:

$$\text{CAGR} = \left\{ \frac{\text{end value}}{\text{first value}} \right\}^{(1/\# \text{ of years})} - 1$$

In table 3, it is observed that the compound annual growth rate is highest in 2012 with 83.59 and the year 2020 ranked the lowest among the other years. It is noticed that there is an increase in the number of publication from 2011-2020 but the compound growth rate of total publication keeps on degrading with the increasing number of year.

Relative growth rate (RGR) and Double Timing (DT)

In general sense, the relative growth rate is defined as the increase in number of articles or pages per unit of time. This definition was originally used in the field of mobile technology to understand the growth analysis. The formula which has been used by Kumar and Kaliyaperumal in 2015 with an equation for calculation of relative growth rate is:

$$1-2r = \log_e W_2 - \log_e W_1 / T_2 - T_1$$

The table 3 represent the relative growth rate and double timing of the total number of publication from 2011-2020. It is noticed that the relative growth rate (RGR) has been decreasing with the passing of the year i.e. 0.78673 in 2012 to 0.16429 in 2020. Through the publication has increase, it has been observed that there is decreasing of relative growth rate subsequently.

In table 3, the doubling time of the total growth rate of publication is discussed. It is observed that there exist a direct equivalence between the doubling time and the relative growth rate. The formula for the calculation of doubling time is:

$$\text{Doubling Time (DT)} = 0.693/R$$

It is noticed that the doubling time has tremendously increase with the approaching of every cumulative year. The highest is seen in 2018 with 4.51113 and the lowest is seen in 2012 with 0.88086.

Ranking of Journals

Table 4: Ranking of Journals with no. of Literature Published

S.N.	Name of the Journals	No. of Articles	Percentage	Rank
1	Sex Roles	54	7.53	1
2	BMC Public Health	36	5.02	2
3	Tech Trends	29	4.04	3
4	Journal of Youth and Adolescence	24	3.34	4
5	Education and Information Technology	24	3.34	4
6	Educational Technology Research and Development	18	2.51	5
7	The Asia-Pacific Education Researcher	16	2.23	6
8	Journal of Eating Disorders	13	1.81	7
9	Sexuality & Culture	12	1.67	8
10	Eating and Weight Disorders-Studies on Anorexia, Bulimia and Obesity	12	1.67	8
11	Post digital Science and Education	12	1.67	8
12	Research in Science Education	10	1.39	9
13	Cultural Studies of Science Education	9	1.25	10
14	The Unban Review	8	1.12	11
15	Archives of Sexual Behaviours	8	1.12	11

16	International Review of Education	7	0.97	12
17	Technology, Knowledge and Learning	7	0.97	12
18	Journal of Consumer Policy	7	0.97	12
19	Current Obesity Reports	7	0.97	12
20	Academic Psychiatry	6	0.83	13
21	Current Addiction Reports	6	0.83	13
22	Asia Pacific Education Review	6	0.83	13
23	International Journal of Educational Technology in Higher Education	6	0.83	13
24	Early Childhood Education Journal	6	0.83	13
25	Sexuality Research and Social Polity	6	0.83	13
26	Canadian Journal of Science, Mathematics and Technology Education	6	0.83	13
27	The Journal of Primary Prevention	5	0.69	14
28	Scientometrics	5	0.69	14
29	American Journal of Cultural Sociology	5	0.69	14
30	Studies in Philosophy and Education	5	0.69	14
31	Journal of Child and Adolescent Trauma	5	0.69	14
32	Multimedia Tools and Application	5	0.69	14
33	International Journal of Mental Health and Addiction	5	0.69	14
34	Journal of Public Health	5	0.69	14
35	Children's Literature in Education	5	0.69	14
36	International Journal of Technology and Design Education	5	0.69	14
37	ZDM	4	0.55	15
38	Interchange	4	0.55	15
39	Prevention Science	4	0.55	15
40	Journal of Child and Family Studies	4	0.55	15
41	Journal of General Internal Medicine	4	0.55	15
42	Latino Studies	4	0.55	15
43	Personal and Ubiquitous Computing	4	0.55	15
44	International Journal of Behavioural Medicine	4	0.55	15
45	Current Psychiatry Reports	4	0.55	15
46	Journal of Science Education and Technology	4	0.55	15
47	Current Psychology	4	0.55	15
48	International Journal of Behavioural Nutrition and Physical Activity	3	0.41	16
49	Curriculum Perspective	3	0.41	16

50	Annals of Behavioural Medicine	3	0.41	16
51	Reading and Writing	3	0.41	16
52	Adolescence Research Review	3	0.41	16
53	Indian Paediatrics	3	0.41	16
54	Social Psychology of Education	3	0.41	16
55	Journal of Business Ethics	3	0.41	16
56	Child Indicators Research	3	0.41	16
57	Educational Research for Polity and Practice	3	0.41	16
58	Canadian Journal of Public Health	3	0.41	16
59	Population Research and Policy Review	3	0.41	16
60	Universal Access in the Information Society	3	0.41	16
61	International Journal of Public Health	3	0.41	16
62	Journal of Community Health	3	0.41	16
63	European Journal of Paediatrics	2	0.27	17
64	BMC Medical Informatics and Decision Making	2	0.27	17
65	Community Mental Health Journal	2	0.27	17
66	Race and Social Problems	2	0.27	17
67	Zeitschrift fur Erziehungswissenschaft	2	0.27	17
68	BCM Medical Education	2	0.27	17
69	Journal of Computer in Education	2	0.27	17
70	International Journal for Equity in Health	2	0.27	17
71	The Australian Educational Researcher	2	0.27	17
72	Contemporary School Psychology	2	0.27	17
73	Science and Engineering Ethics	2	0.27	17
74	Journal of Family Violence	2	0.27	17
75	KN-Journal of Cartography and Geography Information	2	0.27	17
76	International Journal of STEM Education Research	2	0.27	17
77	Journal of International Migration and Integration	2	0.27	17
78	International Journal of Computer-Supported Collaboration Learning	2	0.27	17
79	Political Behaviour	2	0.27	17
80	European View	2	0.27	17
81	Educational Psychology Review	2	0.27	17
82	Current Nutrition Reports	2	0.27	17
83	Publizistik	2	0.27	17
84	Frontiers of Education in China	2	0.27	17

85	Learning Environment Research	2	0.27	17
86	Journal of Formative Design in Learning	2	0.27	17
87	Agriculture and Human Values	2	0.27	17
88	Science and Education	2	0.27	17
89	Innovative Higher Education	2	0.27	17
90	BMC Pediatrics	2	0.27	17
91	Springerplus	2	0.27	17
92	European Journal for Security Research	2	0.27	17
93	BMC Family Practice	2	0.27	17
94	Journal of African American Studies	2	0.27	17
95	Journal of The Knowledge Economy	2	0.27	17
96	Federal Health Gazette - Health Research - Health Protection	2	0.27	17
97	Translational Behavioural Medicine	1	0.13	18
98	Quality & Quantity	1	0.13	18
99	SN Applied Science	1	0.13	18
100	Society	1	0.13	18
101	Trails	1	0.13	18
102	Journal of Religious Education	1	0.13	18
103	Journal of Science Teacher Education	1	0.13	18
104	BMC Psychology	1	0.13	18
105	Health Care Analysis	1	0.13	18
106	Clinical Social Work Journal	1	0.13	18
107	Groupe Interaction Organisation Zeitschrift fur Angewandte Organisations Psychology	1	0.13	18
108	Journal of Bioethical Inquiry	1	0.13	18
109	Journal of Global Entrepreneurship Research	1	0.13	18
110	Current Diabetes Reports	1	0.13	18
111	Journal of Innovation and Entrepreneurship	1	0.13	18
112	The European Journal of Health Economics	1	0.13	18
113	Cognitive Research: Principles and Implications	1	0.13	18
114	Forensische Psychiatrie, Psychologie, Kriminologie	1	0.13	18
115	Journal of Cancer Research and Clinical Oncology	1	0.13	18
116	Journal of Environmental Studies and Sciences	1	0.13	18
117	Child Psychiatry & Human Development	1	0.13	18
118	Journal of Academic Ethics	1	0.13	18
119	PROSPECTS	1	0.13	18

120	Implementation Science	1	0.13	18
121	Education Studies in Mathematics	1	0.13	18
122	Journal of Educational Research	1	0.13	18
123	Behavioural and Social Issues	1	0.13	18
124	Asian Journal of Business Ethics	1	0.13	18
125	Journal for continuing education research	1	0.13	18
126	Acta Politica	1	0.13	18
127	Information Retrieval Journal	1	0.13	18
128	Zeitschrift für Bildungsforschung	1	0.13	18
129	Journal of Chinese Political Science	1	0.13	18
130	International Journal of Education and Vocational Guidance	1	0.13	18
131	Global Business Perspectives	1	0.13	18
132	Tobacco Induced Diseases	1	0.13	18
133	Philosophia	1	0.13	18
134	Wuhan University Journal of Natural Sciences	1	0.13	18
135	Journal of Cancer Education	1	0.13	18
136	AStA Wirtschafts-und Sozialstatistisches Archive	1	0.13	18
137	Educational Assessment, Evaluation and Accountability	1	0.13	18
138	Journal of Contemporary Psychotherapy	1	0.13	18
139	European Geriatric Medicine	1	0.13	18
140	Computer Support Cooperative Work (CSCW)	1	0.13	18
141	Current Treatment Options in Psychiatry	1	0.13	18
142	Cognitive Therapy and Research	1	0.13	18
143	Journal of Education	1	0.13	18
144	Regional Trends	1	0.13	18
145	Mathematics Education Research Journal	1	0.13	18
146	Journal of the International Society of Sports Nutrition	1	0.13	18
147	The Behavior Analyst	1	0.13	18
148	Archival Science	1	0.13	18
149	Publishing Research Quarterly	1	0.13	18
150	Pastoral Psychology	1	0.13	18
151	Journal of Environmental Studies and Sciences	1	0.13	18
152	Evolution: Education and Outreach	1	0.13	18
153	Dialectical Anthropology	1	0.13	18
154	GeoJournal	1	0.13	18

155	Scientific and Technical Information Processing	1	0.13	18
156	Business & Information Systems Engineering	1	0.13	18
157	Journal for General Philosophy of Science	1	0.13	18
158	AI & SOCIETY	1	0.13	18
159	International Journal of Environmental Science and Technology	1	0.13	18
160	Journal of Urban Health	1	0.13	18
161	KZfSS Cologne journal for sociology and social psychology	1	0.13	18
162	Journal of Immigrant and Minority Health	1	0.13	18
163	Journal of Direct, Data and Digital Marketing Practice	1	0.13	18
164	Pastoral Psychology	1	0.13	18
165	Journal of Housing and the Built Environment	1	0.13	18
166	Neohelicon	1	0.13	18
167	Mathematical Letter Pristem	1	0.13	18
168	Maternal and Child Health Journal	1	0.13	18
169	Sexuality and Disability	1	0.13	18
170	Psychiatric Quarterly	1	0.13	18
171	Multilingual Education	1	0.13	18
172	European Journal of Futures Research	1	0.13	18
173	International Journal of Early Childhood	1	0.13	18
174	Journal of Educational Change	1	0.13	18
175	Journal of Abnormal Child Psychology	1	0.13	18
176	Argumentation	1	0.13	18
177	Virtual Reality	1	0.13	18
178	Behavior Research Methods	1	0.13	18
179	Psychoanalysis, Culture & Society	1	0.13	18
180	Journal of Literature and Linguistics	1	0.13	18
181	Language Testing in Asia	1	0.13	18
182	European Political Science	1	0.13	18
183	Social Trends	1	0.13	18
184	Understanding literacy as our WORLD inheritance	1	0.13	18
185	Human Affairs	1	0.13	18
186	Therapeutic Innovation & Regulatory Science	1	0.13	18
187	Politische Vierteljahresschrift	1	0.13	18
188	Journal of Public Health Policy	1	0.13	18
189	Philosophy, Ethics and Humanities in Medicine	1	0.13	18
190	Quality of life Research	1	0.13	18

191	BMC Medical Ethics	1	0.13	18
192	International Journal of Educational Integrity	1	0.13	18
193	Place Branding and Public Diplomacy	1	0.13	18
194	List Forum for Wirtschafts and Finanzpolitik	1	0.13	18
195	Current Paediatrics reports	1	0.13	18
196	Video Journal of Educational and Pedagogy	1	0.13	18
197	Globalization and Health	1	0.13	18
198	Systematic Reviews	1	0.13	18
199	Asian Bioethics Review	1	0.13	18
200	Lexicography	1	0.13	18
201	Journal of Family and Economic Issues	1	0.13	18
202	Fashion and Textiles	1	0.13	18
203	Policy Sciences	1	0.13	18
204	Quality & Quantity	1	0.13	18
205	Biosocieties	1	0.13	18
206	Information Systems Frontiers	1	0.13	18
207	Climatic Change	1	0.13	18
208	Language Testing in Asia	1	0.13	18
209	Journal of Cultural Cognitive Science	1	0.13	18
210	Osteoporosis International	1	0.13	18
211	International Journal on Interactive Design and Manufacturing	1	0.13	18
212	Philosophy & Technology	1	0.13	18
213	AIDS and Behaviour	1	0.13	18
214	Journal of Computing in Higher Education	1	0.13	18
215	Academic Question	1	0.13	18
216	Medical Science Education	1	0.13	18
217	Journal of Organization Design	1	0.13	18
218	Social Network Analysis and Mining	1	0.13	18
219	Theory and Society	1	0.13	18
220	Environment Development and Sustainability	1	0.13	18
221	Administration and Policy in Mental Health and Mental Health Service Research	1	0.13	18
222	International Cybersecurity Law Review	1	0.13	18
223	Ethics and Information Technology	1	0.13	18
224	The Visual Computer	1	0.13	18
225	Instructional Science	1	0.13	18
226	International Journal of Science and Mathematics Education	1	0.13	18

227	Journal of Ambient Intelligence and Humanized Computing	1	0.13	18
228	European Child & Adolescent Psychiatry	1	0.13	18
229	Applied Research in Quality of Life	1	0.13	18
230	Cultural, Medicine and Psychiatry	1	0.13	18
231	Current Medical Science	1	0.13	18
232	BMC Psychiatry	1	0.13	18
233	International Journal for Advancement of Counselling	1	0.13	18
234	Social Psychiatry and Psychiatric Epidemiology	1	0.13	18
235	International Journal of Bullying Prevention	1	0.13	18
236	Global Science Welfare	1	0.13	18
237	Child Psychiatry & Human Development	1	0.13	18
238	Subjectivity	1	0.13	18
239	Indian Journal of Surgery	1	0.13	18
240	Health Care Analysis	1	0.13	18
241	Social Indicators Research	1	0.13	18
242	International Review of Education	1	0.13	18
243	Systemic Practice and Action Research	1	0.13	18
244	Archives of Women's Mental Health	1	0.13	18
245	Substance Abuse Treatments, Prevention and Policy	1	0.13	18
246	Computing	1	0.13	18
247	PFG –Journal of Photogrammetry, Remote Sensing and Geoinformation Science	1	0.13	18
248	BMC Health Services Research	1	0.13	18
249	International Communication of Chinese Culture	1	0.13	18
250	Gender Issues	1	0.13	18
251	European Journal of Psychology of Education	1	0.13	18
Total		717		

The table 4 represent the ranking of journals with the number of literature published by different journal in different segments. It is found that a total number of 251 Journals were available in the Springer Link, out of these 54 (7.53%) articles were published under Sex roles (Journal), it occupies the highest rank journal in the Springer Link, followed by BCM Public Health with 36 (5.02%). Tech Trends was rank 3rd position with 29 (4.04%) and Journal of Youth and Adolescence and Education and Information Technology were acquiring 4th rank containing 24 (3.34%) articles respectively.

Ranking of Publishers in the SpringerLink Database

Table 5: Ranking of Publisher in the SpringerLink Database

S.N	Name of Publishers	No. of Literature	Percentage	Rank
1	Springer Cham	627	29.91	1
2	Palgrave Macmillan London	276	13.16	2
3	Palgrave Macmillan Cham	249	11.87	3
4	Springer Singapore	167	7.96	4
5	Sense Publisher Rotterdam	165	7.87	5
6	Springer Vs Wiesbaden	141	6.72	6
7	Palgrave Macmillan New York	109	5.20	7
8	Springer Dordrecht	69	3.29	8
9	Springer Berlin Heidelberg	62	2.95	9
10	Springer, New York, NY	45	2.14	10
11	Sense Publisher	30	1.43	11
12	Palgrave Pivot Cham	28	1.33	12
13	VS Publishing house for Social Science	20	0.95	13
14	Springer Gabler Wiesbaden	14	0.66	14
15	Palgrave Pivot, New York	12	0.57	15
16	Palgrave Pivot, London	11	0.52	16
17	T.M.C. Asser Press, The Hague	10	0.47	17
18	Palgrave Macmillan Singapore	8	0.38	18
19	Springer, Boston, MA	8	0.38	18
20	J.B. Metzler, Stuttgart	8	0.38	18
21	Gabler	7	0.33	19
22	Springer, London	7	0.33	19
23	Springer Viewey, Wiesbaden	4	0.19	20
24	Island Press/Center for Resource Economics	2	0.09	21
25	Springer Wiesbaden	2	0.09	21
26	Islam Press Washington DC	2	0.09	21
27	Apress, Berkeley,, CA	1	0.04	22
28	Copeminus, Cham	1	0.04	22
29	Gabler Verlang, Wiesbaden	1	0.04	22
30	Human Press Cham	1	0.04	22
31	Humana Press, Totowa, NJ	1	0.04	22
32	Springer New Delhi	1	0.04	22
33	Springer Spektrum, Wiesbaden	1	0.04	22
34	Springer Tokyo	1	0.04	22
35	Sammy Wafi Markus Antonius Wirtz	1	0.04	22
36	Springer, Heidelberg	1	0.04	22
37	Springer Vieweg, Berlin, Heidelberg	1	0.04	22
38	Springer, Vienna	1	0.04	22

39	Wiesbaden	1	0.04	22
Total		2096		

The table 5 represent the ranking of publishers in the Springer link database with the number of literature published. There are different categories of literature published during the period of 2011-2020 such as Chapter, Article, Reference Work Entry, Conference Paper and Book among these categories of literature, the author(s) considered only Chapters and Conference Papers to determine the publisher distribution under the SpringerLink. The table 5 reveals that the highest publisher was Springer Cham along with 627 and 29.91% whereas 276 (13.16%) literature published by Palgrave Macmillan London after that Palgrave Macmillan Cham become third rank with 249 (11.87%) of literature.

Authorship Pattern

Table 6: Authorship Pattern

S.N.	Authorship Pattern	No. of Items	Percentage	Rank
1	Single Author	1274	45.29	1
2	Two Authors	724	25.74	2
3	Three Authors	404	14.36	3
4	Four Authors	195	6.94	5
5	More than Four Authors	216	7.67	4
Total		2813		

In the table 6, the authors were categorized in the numerical form and this table shows that a number of 1274 (45.29%) literature were produced by single author, followed by two authors they produced 724 (25.74%), 404 (14.36) literature were contributed by three authors, 195 (6.94) by four authors, and 216 (7.67) by more than four authors. It shows the trend of single authorship prevails among the authors of the literature published on the concept.

Co-Authorship Pattern

Table 7: Co-Authorship Pattern

Year	Total	1 (Author)	2	3	4	>4	DC	CI	CC
2011	148	81	45	12	4	6	0.45	1.71	0.26
2012	186	113	36	24	8	5	0.40	1.69	0.24
2013	215	120	54	25	8	8	0.44	1.74	0.27
2014	299	158	73	38	17	13	0.47	1.72	0.29
2015	265	114	73	40	15	23	0.57	2.09	0.36
2016	299	141	76	37	22	23	0.52	2.03	0.33
2017	318	132	78	56	25	27	0.58	2.17	0.37
2018	283	115	81	45	15	27	0.59	2.14	0.37
2019	382	141	105	51	40	45	0.63	2.33	0.40
2020	418	159	103	76	41	39	0.62	2.28	0.40

Total	2813	1274	724	404	195	216	0.55	2.06	0.34
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Degree of Collaboration (DC): The degree of collaboration is defined as ratio of total number of collaborative research papers to the total number of research papers during a certain period of time. The following formula was suggested by Subramanyam by which he used to calculate DC.

$$C = \frac{N_m}{N_m + N_s}$$

Where,

C = Degree of collaboration.

N_m = Number of multi-authored research papers published during a year.

N_s = Number of single authored research papers in the discipline published during a year.

In table 7, the co-authorship pattern of the literatures published was discussed. The table were divided into one author, two authors, three authors, four authors and more than four authors respectively. In the matter of degree of collaboration, it is observed that there is gradual increase in the number of co-authorship pattern. The highest degree of collaboration was 0.62 in 2019 and the lowest degree of collaboration is 0.40 in 2016.

Collaborative Index (CI): This is one of the early measures of degree of collaboration derived by Lawani (1986).

$$CI = \frac{\sum \frac{A}{f}}{N}$$

It is a measure of mean number of authors. Although it is easily computable, it is not easily interpretable as a degree, for it has no upper limit moreover; it gives a non-zero weight to single-authored papers, which involve no collaboration. (1 1 2 2 3 3) () () () Calculation: CI f f L f k N + + + + = Where, f1, f2,f3.....= number of authors N = Number of publications in that year (Neelamma and Gavisiddappa, 2018).

It is observed from the table 7 that collaborative index (CI) of 2019 has the highest number of authors pattern with 2.33 which is followed by 2.28 in 2020. The least number of collaborative index was seen as 1.69 in 2012. The total cumulative index of co-Authorship pattern is 2.06.

Collaboration Coefficient (CC): the purpose of it is to remove the shortcomings pertaining to Degree of collaboration and collaborative index. The following formula given by Savanur & Srikanth (2010) is adopted for calculation:

$$CC = 1 - \frac{\sum_{j=1}^k \left(\frac{1}{j}\right) f_j}{N}$$

Where, ‘ j ’ denotes the authorship in an article; ‘ ff ’ denotes the number of j authored articles; ‘ k ’ is the greatest no. of authors per paper; and ‘ N ’ denotes the total number of articles published in a year.

Collaborative coefficient is a number between 0 and 1, whatever the number is closer to 1 indicates more collaboration between authors.

The table 7 represents collaboration co-efficient of co-authorship pattern from the total number of publication of literature. It is observed that the year 2020 and 2019 has the co-efficient of 0.40 subsequently. It is followed by 2017 and 2018 with 0.37 in each year. The least number of co-efficient was found in 2012 with 0.24. The total number of collaboration co-efficient is 0.34.

Citation Pattern

Table 8: Citation pattern

S.N	No. of Citation	No. of Items	Percentage	Rank
1	0-10	2621	93.17	1
2	11-20	94	3.34	2
3	21-30	51	1.81	4
4	Above 30	47	1.68	3
Total		2813		

The Table 8 shows that in between 0-10 total number of citation of 93.17% (2621) were available, and next followed by 3.34% (94) citations and also total no. of 1.81% (51) citations were available in between 21-30 and a 1.68% (47) were in the above 30.

Altmetric Pattern for Journal Article

Table 9: Altmetric Pattern for Journal Article

S.N.	No. of Almetric	No. of Items	Percentage	Rank
1	0-10	602	83.96	1
2	11-20	50	6.97	2
3	21-30	23	3.21	4
4	Above 30	42	5.86	3
Total		717		

The Table 9 indicated altmetric pattern of the literature published by Springer Link in terms of number with their rank and percentage. A total number of 0-10 had the highest majority with 83.96% (602), followed by 11-20 also had a literature of 6.97% (50), and between 21-30 a total no. of 3.21% (23) were available. Furthermore, 5.86% (42) were in the above 30.

Geographic Distribution of Literature

Table 10: Geographic Distribution of Literature

S.N	Country	No. of Literature	Percentage	Rank
1	USA	615	21.86	1
2	Germany	324	11.51	2

3	UK	263	9.34	3
4	Australia	235	8.35	4
5	Canada	228	8.10	5
6	China	127	4.51	6
7	Netherlands	82	2.91	7
8	Belgium	75	2.67	8
9	Norway	60	2.13	9
10	Spain	51	1.81	10
11	Taiwan	43	1.52	11
12	South Korea	41	1.45	12
13	Austria	40	1.42	13
14	Finland	40	1.42	13
15	Israel	39	1.38	14
16	Italy	38	1.35	15
17	Turkey	37	1.31	16
18	Ireland	36	1.28	17
19	France	35	1.24	18
20	New Zealand	35	1.24	18
21	Japan	30	1.06	19
22	Sweden	30	1.06	19
23	Croatia	25	0.89	20
24	Singapore	22	0.78	21
25	Switzerland	21	0.74	22
26	Brazil	20	0.71	23
27	Malaysia	20	0.71	23
28	Hong Kong	18	0.64	24
29	Hungary	15	0.53	25
30	Portugal	15	0.53	25
31	South Africa	10	0.35	26
32	Denmark	9	0.31	27
33	Iran	8	0.28	28
34	Thailand	8	0.28	28
35	Slovakia	7	0.24	29
36	India	7	0.24	29
37	Estonia	6	0.21	30
38	Greece	6	0.21	30
39	Pakistan	6	0.21	30
40	Czech Republic	5	0.18	31
41	Lebanon	5	0.18	31

42	Mexico	5	0.18	31
43	Poland	5	0.18	31
44	UAE	5	0.18	31
45	Malta	4	0.14	32
46	Nigeria	4	0.14	32
47	Russia	4	0.14	32
48	Egypt	3	0.10	33
49	Latvia	3	0.10	33
50	Luxemburg	3	0.10	33
51	Cyprus	3	0.10	33
52	Oster Reich	3	0.10	33
53	Saudi Arabia	3	0.10	33
54	Argentina	2	0.07	34
55	Chile	2	0.07	34
56	Colombia	2	0.07	34
57	Lithuania	2	0.07	34
58	Philippines	2	0.07	34
59	Ukraine	2	0.07	34
60	Albania	1	0.03	35
61	Arizona	1	0.03	35
62	Algeria	1	0.03	35
63	Brussels	1	0.03	35
64	Cologne	1	0.03	35
65	Guadeloupe	1	0.03	35
66	New Caledonia	1	0.03	35
67	Krakow	1	0.03	35
68	Georgia	1	0.03	35
69	Senegal	1	0.03	35
70	Ethiopia	1	0.03	35
71	Kingdom of Bahrain	1	0.03	35
72	Jamaica	1	0.03	35
73	Serbia	1	0.03	35
74	Guatemala	1	0.03	35
75	Burkina Faso	1	0.03	35
76	Namibia	1	0.03	35
77	Romania	1	0.03	35
78	Slovenia	1	0.03	35
Total		2813		

The Table 10 shows that the distribution of literature of different countries by Springer Link in the field of media literacy during 2011-2020. This table reveals that total 78 countries were distributed 2813 literatures in the worldwide. Out of 2813 literature 21.86 % (615) were produced from USA and occupied first place. Germany places in the second position with 11.51% (324) and the UK was third place on the list of distributing countries with 9.34% (263).

6. Findings and Conclusion

The study has given the findings such as:

- It has found that 57.36% (1772) of the chapter has the highest number of literature which is followed by article with 23.22% (717). The Conference paper, reference work entry and book has 10.49% (324), 8.81% (272) and 0.12% respectively in their respective category;
- It resulted that the literature keeps increasing in constant speed with 468 (15.15%) which rank as the highest number of literature published in 2020. It is followed by the year 2019 which is rank second in the list with a cumulative growth of 84.85% (437);
- The year 2011 has the least number of publications with percentage of 5.12 % (158). Likewise the year 2012, 2013, 2014, 2015, 2016, 2017 and 2018 has 6.12%, 6.96%, 10.36%, 9.52%, 10.71%, 11.85% and 10.06% respectively. The cumulative growth of literature is highest in 2020 with 3089 and least in 2011 with 158;
- It found out that the year 2014 has the highest number of annual growth rate with 48.84. It is followed by 2019 with 40.51 annual growth rates. The year 2015 has the least number of annual growth rate (AGR) with -8.125;
- It been found that the cumulative annual growth rate is highest in 2012 with 83.59 and the year 2020 ranked the lowest among the other cumulative year. It is noticed that there is an increase in the number of publication from 2011-2020 but the compound growth rate of total publication keeps on degrading with the increasing number of year;
- It is noticed that the relative growth rate (RGR) has been decreasing with the passing of the year i.e. 0.78673 in 2012 to 0.16429 in 2020. Through the publication has increase, it has been observed that there is decreasing of relative growth rate subsequently;
- It has resulted that the doubling time has tremendously increase with the approaching of every cumulative year. The highest is seen in 2018 with 4.51113 and the lowest is seen in 2012 with 0.88086;
- It is found that a total number of 251 Journals were available in the SpringerLink, out of these 54 (7.53%) articles were published under Sex roles (Journal) it occupies the highest rank journal in the Springer Link, followed by BCM Public Health with 36 (5.02%). Tech Trends was rank 3rd position with 29 (4.04%) and Journal of Youth and Adolescence and Education and Information Technology were acquiring 4th rank containing 24 (3.34%) articles respectively;
- The highest ranked publisher was Springer Cham along with 627 and 29.91% whereas 276 (13.16%) literature published by Palgrave Macmillan London after that Palgrave Macmillan Cham become third rank with 249 (11.87%) of literature;

- It is found that a total number of 1274 (45.29%) literature were produced by single author, followed by two authors they produced 724 (25.74%) and 404(14.36) literature were contributed by three authors.
- In the matter of degree of collaboration, it is observed that there is gradual increase in the number of co-authorship pattern.
- The highest degree of collaboration was found as 0.62 in 2019 and the lowest degree of collaboration is 0.40 in 2016;
- It is observed that collaborative index (CI) of 2019 has the highest number of authors pattern with 2.33 which is followed by 2.28 in 2020. The least number of collaborative index (CI) was seen as 1.69 in 2012. The total cumulative index of co-Authorship pattern is 2.06;
- It is observed that the year 2020 and 2019 has the co-efficient of 0.40 subsequently. It is followed by 2017 and 2018 with 0.37 in each year. The least number of co-efficient was found in 2012 with 0.24. The total number of collaboration co-efficient is 0.34;
- The results shows that in between 0-10 total number of citation of 93.17% (2621) were available, and next followed by 3.34% (94) citations and also total no. of 1.81% (51) citations were available in between 21-30 and a 1.68% (47) were in the above 30;
- The Altmetric pattern of the literature published by SpringerLink in terms of number with their rank and percentage, a total number of 0-10 had the highest majority with 83.96% (602), followed by 11-20 also had a literature of 6.97% (50), and in between 21-30, a total no. of 3.21% (23) were available. Furthermore, 5.86% (42) were in the above 30; and
- It is also found that a total 78 countries were distributed 2813 literatures in the worldwide. Out of 2813 literature, 21.86 % (615) were produced from USA and occupied first place. Germany places in the second position with 11.51% (324) and the UK was third place on the list of distributing countries with 9.34% (263).

The concept of media Literacy has been holding one of the most dominant areas in respect of field of Information Literacy. More and more researchers and academicians are taking interest in media literacy wherein many are undertaking research and tried to build a specialized area in this particular zone. The study mainly review the various categories of literature published on 'media literacy' during 2011-2020 in the Springer Link publication database. Media literacy is one of the trading topics in the 21st century many scholars, researchers and educators are doing a research and case study on Information and media literacy disciplines. This study also bring many opportunities for students, researchers and librarians in terms of selection, acquisition, organization , management, retrieval and access of document in the field of media literacy. The result of the study shows that during the year 2011-2020 literature publication are increasing in every year and the cumulative growth rate also developed.

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