Early Years of the *Journal of Learning for Development*: A Combination of Bibliometrics and Thematic Analysis

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Abstract: The paper analyses the contributions to *Journal of Learning for Development* (*JL4D*) from volume one to five using bibliometrics and content analysis techniques. Analysing the 91 papers in various categories of *JL4D*, the paper identifies authorship pattern, topics covered, research methods used, types of documents used in citations, core journals and the median age of citations to *JL4D*. The finding of the study reveals that *JL4D* has created a niche for itself as a specialised research journal focusing on innovations in learning contributing to development.

Keywords: bibliometrics; citation analysis; journal analysis.

Introduction

The *Journal of Learning for Development* (*JL4D*) was conceived in 2013 as an open access journal to be published on a rolling basis (Tait, 2014) and the first issue was published in 2014. In the last five years, *JL4D* has published three issues regularly in March, July and November. While introducing the *Journal*, President and CEO of Commonwealth of Learning (COL) – publisher of the *Journal* – emphasised that there is a growing recognition that learning must lead to development, and there is a need to share the "vast body of knowledge and experience" in this field. Therefore, *JL4D* was started with an explicit aim to "showcase the practical dimension of how learning for development works" (Kanwar, 2014). The *Journal* website states that it is a "forum for the publication of research with a focus on innovation in learning, in particular but not exclusively open and distance learning, and its contribution to development. Content includes interventions that change social and/or economic relations, especially in terms of improving equity" (JL4D, n.d). So, *JL4D* was not envisaged to be another journal of distance and online learning but intended to provide a platform for "all innovation in learning that had as an aim to contribute to social and economic development" (Tait, 2016). It also intended to be a vehicle for engaging "a broad audience of researchers, scholars and practitioners" – early careers as well as established scholars from the Commonwealth and beyond (Kanwar, 2014).

Latchem (2014), appreciating the launch of *JL4D*, stated that:

- it affirms COL's commitment to learning for development;
- the scope of the *Journal* covers sectors other than formal education;
- the *Journal* provides the opportunity to apply the "broader principles of educational technology" and provides evidence of success; and
- the *Journal* provides a blank slate to practitioners and researchers to express their thoughts, ideas, experiences and findings to support lifelong learning.

Baggaley (2014) while analysing the paucity of journals covering 'learning' and 'development' emphasised that "JL4D can anticipate the problems of current and future educational trends via its applied focus on the access and equity problems of learning and development in the developed and developing nations".

Journals are the life blood of research in any discipline, disseminating new ideas and reporting the latest developments in the field (Mishra, 1997). Those, being 'peer reviewed' publications, enjoyed a higher reputation (Royal Society, 1981), but the process eventually delayed publication of research findings (Cronin, 1984). The emergence of electronic publishing and subsequently open access journals made it possible to reduce the time-lag in publication of results. *JL4D* adopted both an online mode and open access principle to publish the *Journal*. As it completed five years of its existence, it is important to analyse and reflect how the *Journal* is progressing and trying to create a niche in its identified field. The objectives of the study were to examine:

- authorship pattern, including contribution segregated by gender and region;
- topics covered, and research methods used; and
- citation pattern, including types of documents cited, age of citations, core journals cited, etc.

Methods

Considering the objectives of the study, a combination of bibliometrics method and content analysis was used in the study to analyse the articles published in *JL4D* and the citation appended to them as references. Since the term bibliometrics was coined by Pritchard (1969), it has been used for analysing research trends in a variety of fields: the history of science, social sciences, library and documentation studies and science policy (Okubu, 1997). In the field of educational technology and distance education a number of single journal studies have been reported in the literature. Some of these include: *British Journal of Educational Technology* (Bond, Zawacki-Richter & Nichols, 2019), *Computers & Education* (Zawacki-Richter, & Latchem, 2018); *Distance Education* (Zawacki-Richter, & Naidu, 2016); *Indian Journal of Open Learning* (Mishra, 2002; Tripathi, & Kanungo, 2010); *The International Review of Research in Open and Distributed Learning* (Zawacki-Richter, Alturki, & Aldraiweesh, 2017). A series of bibliometric studies were published in the *Educational Technology* magazine from 2011 to 2015 covering 22 journals (West, 2016). Bibliometrics methods have emerged as an important field to study the properties and behaviour of recorded knowledge. Various statistical methods are applied to "measure authorship, citation and publication pattern, and the relationship within scientific domains" (Patra, Bhattacharya, & Verma, 2006). Data about the research papers in *JL4D* was collected from the journal website and manually coded in Microsoft Excel to create tables and charts for analysis.

Amongst the bibliometrics tools, study of citations is a common practice since the emergence of citation indexes (Garfield, 1970). The earliest study to use citation data to evaluate the importance of scientific journals was by Gross and Gross (1927) for the study of the *Journal of the American Chemical Society*. The premise is "bibliographic citation is an expression of a relationship between two documents, the citing and the cited" (Cronin, 1984). The *JL4D* is indexed in Google Scholar, Directory of Open Access Journals (DOAJ), Education Resources Information Centre (ERIC), WorldCat and Bielefeld Academic Search Engine (BASE). While the *JL4D* has so far avoided being listed in citation indexes due to the proprietary nature of the indexes, Zawacki-Richter, Anderson and Tuncay (2010)

stated that the proprietary owner of the Citation Indexes, such as the Social Science Citation index, has "little interest in indexing and calculating impact factors for journals in relatively small disciplines and especially those that compete with it as open access publications." It may be noted that the citation analysis also has limitations due to the underlaying motive of the authors while citing a document, which may be serious or frivolous (Cronin, 1984), questioning the validity and reliability of citation data (Rice et al, 1989). Despite its inherent limitations, Zawacki-Richter and Anderson (2011) consider citation data as "the best objective measure describing the relationships between journals and the flow of information in a research discipline" (p. 445). References from all the papers in the *JL4D* were collected and added to a Microsoft Excel sheet for further analysis. For the citation of articles published in *JL4D* in other journals, *Publish or Perish* software (Harzing, 2007) was used with Google Scholar as the source. This is an acceptable method (Zaugg et al., 2011) to analyse citations, particularly when the journal is not indexed in major commercial indexing sources.

While analysis of a citation network built around publications allows us to have a better grasp of how a scholarly community has evolved in a field (Jo, Jeung, Park, & Yoon, 2009), content analysis provides understanding of the trends and issues covered in the discipline. According to Lee, Driscoll, and Nelson (2004) "understanding trends and issues in terms of topics and methods is pivotal in the advancement of research on distance education" (p. 225). Content analysis of journal articles has been done by several researches (Mishra, 1997, 1998; Bond, Zawacki-Richter & Mark Nichols, 2019; Lee et al., 2004; Marín, Duart, Galvis, & Zawacki-Richter, 2018; Zawacki-Richter, Bäcker, & Vogt, 2009; Zawacki-Richter et al., 2017; Zawacki-Richter & Naidu, 2016; Zawacki-Richter & Latchem, 2018). Most of these studies used computer-assisted content analysis as an appropriate method for content analysis. As in the study by Bond et al. (2019), in this study Leximancer™ was used to analyse the title and abstract of the papers published to identify significant concepts and themes covered in the journal.

Data Source

JL4D publishes items under different sections: (i) Editorial/ Foreword, (ii) invited articles, (iii) research articles, (iv) special feature, (v) report from the field, (vi) case study, (vii) commentary, and (viii) book reviews. Except the editorial and book reviews all other sections in the *Journal* are peer reviewed. The invited articles are normally solicited papers form senior experts in the field but still undergo the review process. The special feature section is used to cover topics of special interest such as sustainable development, and a whole series on leaders in open and distance learning was published under this section in 2017 and 2018. From 2014 to 2018, *JL4D* published 118 items under different categories (Table 1). For analysis in this paper, editorial and book reviews were not used, and thus, 91 items were taken for coding and analysis. A publication count of *The International Review of Research in Open and Distributed Learning*, a peer reviewed journal, revealed that it published 81 research articles in the issues of the initial five years. Similarly, the only comparable published data is from *Indian Journal of Open Learning* that published 68 items in its initial five years (Mishra, 1997).

Table 1: Types of Publications in *Journal of Learning for Development*

	2014	2015	2016	2017	2018	Total
Editorial/Foreword	2		3	3	3	11
Special Feature				6	3	9
Invited Articles	6		4	3	4	17
Research Articles	6	7	6	12	8	39
Case Studies	1	2	1	4	1	9
Reports from the Field	5	3	1	1	1	11
Commentary	1	1	2	1	1	6
Book Reviews	4	2	4	2	4	16
Total	25	15	21	32	25	118

Results and Discussion

Authorship Pattern

Collaboration

Authorship pattern is a measure of research collaboration in any field of study (Subramanyam, 1983). It is also widely assumed that collaboration in research is a 'good thing' and "for decades multiple-author publication, frequently referred to as a co-authored publication, has been used as a basic counting unit to measure collaborative activity" (Katz & Martin, 1997). Research also shows that collaboration is associated with increased scientific productivity (Parish, Boyack & Ioannidis, 2018). The average number of co-authors per paper published by individual scientists has steadily increased in all fields over the past century (Fanelli & Larivière, 2016). In the case of *JL4D*, except in the first volume, the number of multiple author papers were more than single author papers. In the five-year period, multiple author papers counted for over 55% of papers (Table 2). Using a formula suggested by Subramanyam (1983), the calculated score (0.56) shows a higher degree of collaboration. In the field of distance education, which is related to the scope of *JL4D*, Mishra (1997) reported that only 38.5% were multiple authored while Zawacki-Richter et al. (2009) reported 55.8% multiple authored papers showing an increase in collaborative research between 1997 and 2009. Authorship pattern analysis in single journal analysis indicated that in the initial ten years of *Indian Journal of Open Learning* only 30.55% were multiple authored, while a study in 2010 indicated an increase in multi-authored papers (47.54%). In *British Journal of Educational Technology* from 2001 to 2010, Mott et al. (2012) found that 69% of papers were co-authored. Similarly, in *Interactive Learning Environments* (2004-2013), the percentage of co-authored papers was 84% (Christensen et al., 2015) and in *Journal of Computing in Higher Education* (2003-2012), the percentage of co-authored paper was 68% (Langton et al., 2015). Therefore, though the multi-authored publications are not high in *JL4D* as in the case of many major educational technology journals, the current degree of collaboration (0.56) could be seen as good for a relatively young journal.

Table 2: Single vs Multiple Author Contributions

	2014	2015	2016	2017	2018	Total	Percentage
Single author	13	4	6	10	7	40	43.96
Two authors	4	3	5	8	9	29	31.87
More than 2 authors	2	6	3	9	2	22	24.18
Total authors	27	31	28	68	32	186	
Degree of Collaboration	0.32	0.69	0.57	0.63	0.61	0.56	

Gender

Not much information is available on gender of the authors contributing to research in the focus area of *JL4D*. However, it is an important consideration for COL to encourage women researchers to support learning for development. Of the authors, whose gender could be identified (through appropriate searches), we found that 61.20% were men (Table 3). The study on distance education research by Zawacki-Richter et al. (2009) found that 55.4% of first authors were male. In comparison the study of *Indian Journal of Open Learning* showed the male contributors at 72.83%. While the available data is not sufficient to make any generalisation on gender of researchers in the field covered by *JL4D*, there is a need to target female researchers to encourage contributions from them.

Table 3: Gender Distribution of Authors

	2014	2015	2016	2017	2018	Total	Percentage
Male	17	21	19	39	18	114	61.29
Female	10	10	9	29	14	72	38.71

Regional Distribution of Contributors

As indicated before one of the objectives of *JL4D* is to encourage research contributions from the Commonwealth and beyond (Kanwar, 2014). A regional analysis (Table 4) of the 186 contributors to *JL4D* revealed that the highest percentage of contributors were from Africa (34.41%) followed by Asia and the Americas with 18.28% and 16.67% respectively. There is variation in distribution of contributions across the regions, but more contributions from Africa shows that the *Journal* has been able to provide researchers in Africa with a good platform to contribute. However, of the 37 countries of the contributors to *JL4D*, Canada and the United Kingdom came out on top (Table 5), with over 50% coming from only five countries (Canada, the United Kingdom, India, South Africa and Tanzania). Interestingly, looking beyond the Commonwealth, *JL4D* has also reached to non-Commonwealth countries (37.84%) indicating that the majority of contributions came from the Commonwealth with 86% of the contributors (Table 6).

Table 4: Regional Distribution of Authors

Regions	Frequency	Percentage
Africa	64	34.41
Americas	31	16.67
Arab states	2	1.08
Asia	34	18.28
Caribbean	6	3,.23
Europe	28	15.05
Pacific	21	11.29
Total	186	100.00

Table 5: Country-wise Contribution Analysis

Country	Frequency	Percentage	Cumulative Percentage
Canada	**14**	**12.84**	**12.84**
United Kingdom	**14**	**12.84**	**25.68**
India	**11**	**10.09**	**35.78**
South Africa	**8**	**7.34**	**43.12**
Tanzania	**7**	**6.42**	**49.54**
USA	5	4.59	54.12
Uganda	4	3.67	57.79
Australia	3	2.75	60.55
Kenya	3	2.75	63.30
Mauritius	3	2.75	66.05
Trinidad and Tobago	3	2.75	68.80
Bangladesh	2	1.83	70.64
Fiji	2	1.83	72.47
France	2	1.83	74.31
Jamaica	2	1.83	76.14
Malaysia	2	1.83	77.98
New Zealand	2	1.83	79.81
Rwanda	2	1.83	81.65
Samoa	2	1.83	83.48
Brazil	1	0.92	84.40
Finland	1	0.92	85.32
Ghana	1	0.92	86.23
Indonesia	1	0.92	87.15
Ireland	1	0.92	88.07
Japan	1	0.92	88.99
Lebanon	1	0.92	89.90
Namibia	1	0.92	90.82
Nepal	1	0.92	91.74
Papua New Guinea	1	0.92	92.66
Philippines	1	0.92	93.57
Qatar	1	0.92	94.49
Singapore	1	0.92	95.41
Sri Lanka	1	0.92	96.33
Turkey	1	0.92	97.24
Uruguay	1	0.92	98.16
Zambia	1	0.92	99.08
Zimbabwe	1	0.92	100.00

Note: Several papers amongst the 91 had authors from multiple countries, and such papers were counted multiple times for analysis in this table.

Table 6: Authors from Commonwealth vs non-Commonwealth Countries

	Country	Authors
Commonwealth	23 (62.16)	160 (86.02)
Non-Commonwealth	14 (37.84)	26 (13.97)
Total Countries	37	186

Figures in brackets indicate percentage

Leading Contributors

Of the 186 authors within the period of five years, sixteen authors contributed at least two papers. However, there were only three who contributed more than three papers (Table 7) – all three of them from Africa, indicating the space created by *JL4D* to support researchers in the region.

Table 7: Leading Contributors

Author	Country	Frequency
Joel S. Mtebe	Tanzania	6
Bernard Nkuyubwatsi	Rwanda/UK	3
Christina Raphael	Tanzania	3

Research Methods

To analyse the research methods used in the papers published in *JL4D*, we broadly used the categorisation followed by Zawacki-Richter et al. (2009) covering quantitative, qualitative, triangulation/mixed method, or others (Grant, Ward & Rong, 1987). While the first three categories are self-explanatory, the category 'others' included papers that were either conceptual, descriptive or opinion/commentary in nature. Table 8 indicates that the highest percentage (48.35%) of contributions in *JL4D* were in the category of 'others' followed by qualitative (23.08%), quantitative (15.38%) and mixed method (13.19%). The percentage of 'others' category or descriptive papers in *JL4D* are similar to an analysis of papers published between 1991 to 1996 in four key journals of distance education by Mishra (1997) who reported the percentage of descriptive papers as 47.6. However, Berge and Mrozowski (2001) classified 75.9% of the articles published in four key journals of distance education as descriptive between 1990 and 1999. Interestingly, the Zawacki-Richter et al. (2009) study reported 38.1% of all articles as descriptive, with 12.9% in the category of mixed-method design (triangulation), which is similar to this study with 13.19% for papers with mixed method research design. In contrast, Bozkurt et al. (2015) analysed seven key journals of distance education between 2009-2013 and reported that DE researchers adopted mostly qualitative (47%) and quantitative (37%) studies, and just a few employed mixed-method (16%) designs. The second highest category of research methods used in *JL4D* is aligned towards the findings of this study, though it is far behind as a comparison Nevertheless, it indicates that so far *JL4D* has attracted more descriptive and qualitative studies. It may also be noted that the findings are not in line with the majority of bibliometrics studies conducted on journals in the field of educational technology, as West (2016) reported that "the field skews strongly towards quantitative methods. Also, most mixed method studies were not balanced in how they honored the different research paradigms" (p. 44).

Table 8: Research Methods Used

Research Methods	2014	2015	2016	2017	2018	Total	Percentage
Quantitative	2	2	2	7	1	14	15.38
Qualitative	5	3	4	3	6	21	23.08
Mixed method	2	2	1	6	1	12	13.19
Others (e.g., Descriptive, conceptual, commentary)	10	6	7	11	10	44	48.35
Total	19	13	14	27	18	91	100.00

Content Analysis

JL4D has a clear focus on innovations in learning leading to development—change in social and/or economic relations, especially in terms of improving equity as a result of learning. However, the historical focus of COL as the sponsoring agency of the *Journal* may influence its content largely towards open education and distance learning. As indicated before, content analysis of the abstracts and the title of the articles were carried out using Leximancer™ software to understand the coverage and focus of the *Journal*. The thematic summary reveals that education has the most direct mentions within the text with 113 (100% relative count), followed by learning (88% connectivity), teachers (35%), need (34%) and research (31%). The concept map (Figure 1) shows linkages of key terms within the five clusters of themes. The longest links can be traced amongst three sub-themes spanning education-need-teachers (see *education-policy-quality-access-need-challenges-online-educational-teachers-school*). The number of papers covered in this analysis was only 85 (six papers had no abstract). Therefore, the thematic clustering is not very strong, though it indicates that the papers published were not just focused on open and distance learning, and the editors and peer reviewers have done the right level of gatekeeping to focus on the *Journal*'s core area of innovations in learning. Thus, while the focus of the papers was by and large on issues related to policy, quality, access, openness, learners and support in specific contexts, learning was the second core issue discussed with a focus on impact, courses, and factors. This was followed by a focus on teachers and teaching, learning and open educational resources. The other foci were on need (focusing purpose and appropriateness to the context) and research. The latter may be attributed to the importance attributed to research methods in any peer-reviewed publication.

Citation Analysis

Citation Characteristics

Bibliographic references in a publication symbolises a metaphoric relation between the cited document and the citing document (McInnis, 1982). References are also indicators of the scholarliness of a journal (Cline, 1982). Table 9 shows that there were only four items without references in *JL4D*, and the average references per article in the *Journal* was 27.67 (excluding the items without references). This is similar to the mean score of 29 references for the journals covered in the study by Zawacki-Richter et al. (2009). While references appended to articles may not be treated as a criterion for quality articles, Price (1970) and Avramescu (1980) suggest that an article with 16±6 reference indicate scholarliness. According to Price (1970) articles providing fewer than 10 references imply that "scholarship does not exist but is irrelevant or exists relevantly but is unknown" (p. 8). In the light of emphasis placed on review of previous research as indicator of quality (Moore, 1985), we can assume

that *JL4D* has maintained standards from the beginning by ensuring authors' focus on previous research in their works.
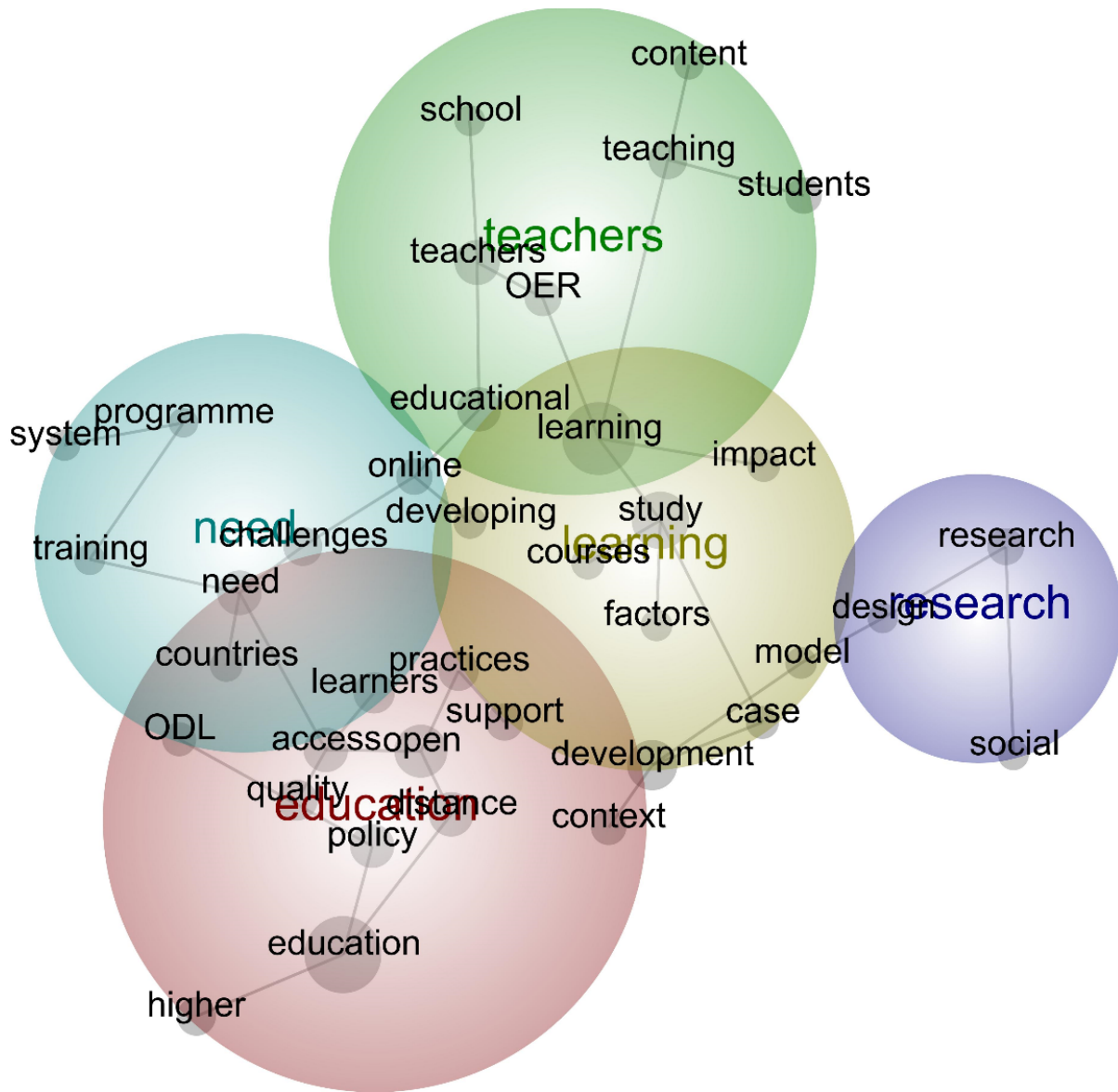

Figure 1: Concept map of themes in *JL4D*

Table 9: Average Number of Citations

	2014	2015	2016	2017	2018	Total	Avg. Citations
No. of items	19	13	14	27	18	91	
No. of references	378	299	466	723	542	2408	27.67
Items with no references	3	0	0	1	0	4	

Types of Citation

Table 10 shows the types of documents cited in the papers published in *JL4D*: 36.54% of the citations were from *Journal* sources, followed by 32.77% in the 'others' category, which included government reports, weblinks, blogs, personal communication, etc. References to books, including chapters in books were 23.8% and conference papers accounted for only 6.27%. This information use pattern by contributors of *JL4D* indicates that they are highly dependent on journals and grey literature. Out of the total of 2,408 references in all the articles, 1,093 (45.39%) had a Uniform Resource Locator (URL) attached to it indicating increased use of electronic resources by scholars publishing in *JL4D*. This trend is comparable to the analysis of types of document cited in *Indian Journal of Open Leaning* (Tripathi & Kanungo, 2010) which showed 34.07% journal citations.

Table 10: Type of Citations

	2014	2015	2016	2017	2018	Frequency	Percentage
Books	88	86	112	164	123	573	23.80
Journals	116	98	174	277	215	880	36.54
Conferences	18	14	28	67	24	151	6.27
Dissertations	6	2	3	3	1	15	0.62
Others	150	99	149	212	179	789	32.77

Core Journals Cited

Of the 880 citations from journal articles, analysis was carried out to study scattering of journals in the field of learning for development. There were 406 journals cited, of which 289 (32.84%) were with only one citation and 25 journals accounted for over 40% of the citations (Table 11). While *The International Review of Research in Open and Distributed Learning* is the leading journal cited with 8.41% of citations, the dispersion of journals cited by scholars contributing to *JL4D* indicates that the field draws from several fields of studies and is not necessarily influenced by open and distance learning alone.

Most Cited Authors

Most cited authors indicate their significant impact to the field. However, in the case of *JL4D*, the current analysis does not indicate high citation of any single individual or a group of researchers. However, Table 12 indicates that the top cited authors in the articles published in *JL4D*. Interestingly, most of the authors listed in this table are from the field of open and distance learning. In other words, this shows that *JL4D* contributors are largely influenced by scholars in open and distance learning, though the thematic analysis and scattering of journals do not support this assertion strongly.

Most Cited Works

An author could write many works, but not all of his/her works will receive similar attention from peer researchers. While the dispersal of references in *JL4D* was large, covering a variety of areas, Table 13 shows the list of documents cited more than four times. Martin Weller, whose name appears in the most cited author list also has two publications in the list of most cited works.

Table 11: Core Journals Cited in *JL4D*

Journal Name	Frequency	Cumulative Frequency	Percentage	Cumulative Percentage
The International Review of Research in Open and Distributed Learning	74	74	8.41	8.41
Distance Education	23	97	2.61	11.02
Open Learning: The Journal of Open, Distance and e-Learning	23	120	2.61	13.64
Computers & Education	20	140	2.27	15.91
British Journal of Educational Technology	17	157	1.93	17.84
International Journal of Educational Development	16	173	1.82	19.66
eLearning Papers	15	188	1.70	21.36
Journal of Learning for Development	15	203	1.70	23.07
Open Praxis	15	218	1.70	24.77
International Journal of Education and Development Using Information and Communication Technology	14	232	1.59	26.36
Journal of Interactive Media in Education	14	246	1.59	27.96
Turkish Online Journal of Distance Education	11	257	1.25	29.21
Australasian Journal of Educational Technology	9	266	1.02	30.23
Computers in Human Behavior	9	275	1.02	31.25
Educational Technology & Society	9	284	1.02	32.27
Internet & Higher Education	9	293	1.02	33.30
Educational Researcher	8	301	0.91	34.21
EDUCAUSE Review	8	309	0.91	35.11
Procedia - Social and Behavioral Sciences	8	317	0.91	36.02
Harvard Business Review	7	324	0.80	36.82
Journal of Computer Assisted Learning	7	331	0.80	37.61
Learning, Media and Technology	7	338	0.80	38.41
European Journal of Open, Distance and eLearning	6	344	0.68	39.09
Journal of Online Learning and Teaching	6	350	0.68	39.77
Online Journal of Distance Learning Administration	6	356	0.68	40.46

Table 12: Most Cited Authors

Most frequently cited authors	Frequency
Alan W. Tait, United Kingdom	12
Martin Weller, United Kingdom	12
John Daniel, Canada	11
Michael G. Moore, USA	11
Andy Lane, United Kingdom	10
David Wiley, USA	10
Grainne Conole, United Kingdom	9
Joel S. Mtebe, Tanzania	9
Stephen Downes, Canada	8
Som Naidu, Fiji	8

Table 13: Most Cited Works in *JL4D*

Citations	Frequency
Weller, M. (2014). *Battle for Open: How openness won and why it doesn't feel like victory*. London: Ubiquity Press.	8
Liyanagunawardena, T., Williams, S., & Adams, A. (2013). The Impact and Reach of MOOCs: A Developing Countries' Perspective. *eLearning Papers* (33). Retrieved May 13, 2015, from http://www.openeducationeuropa.eu/en/article/The-Impact-and-Reach-of-MOOCs%3A-A-Developing-Countries%E2%80%99-Perspective?paper=124335	5
Cohen, L., Manion, L., & Morrison, K. (2011). *Research methods in education* (7th ed.). Oxford: Routledge.	4
Daniel, J. (1996). *Mega-universities and knowledge media: Technology strategies for higher education*. London: Kogan Page.	4
Moore, M. (1993). Theory of Transactional Distance. In D. Keegan (Ed.), *Theoretical principles of distance education*. New York: Routledge.	4
Mtebe, J. S., & Raisamo, R. (2014). Investigating perceived barriers to the use of Open Educational Resources in higher education in Tanzania. *International Review of Research in Open and Distance Learning,* 15(2), 43-65.	4
Weller, M. (2011). *The digital scholar: How technology is transforming scholarly practice*. Bloomsbury Academic. Retrieved from http://oro.open.ac.uk/29664/	4

Age of Citations

Calculating the age of citations appended to journal articles is called 'half-life' or 'obsolescence'. Half-Life of a literature is defined as the median age of 50% of all citations received in a particular year. This means 50% of references are below the half-life age and the other half beyond that age. Cited Half-Life is a good measure to find out if older or newer material is receiving attention (Minnick, 2017) in *JL4D*. Of the 2,408 references, there were 54 (2.24%) references without date. These were deleted form the age analysis. Half-life for the references of *JL4D,* was calculated using the median age method described by Arao, da Costa Santos and Guedes (2017), which was eight years (Table 14). Using a mean age calculation approach, the average age of references in *JL4D* was calculated as 8.37. This means the scholars contributing to *JL4D* use 50% of their literature from the last 8 years.

Most Cited Papers of JL4D

Google Scholar uses h-index to measure the citation received by an individual or a journal profile. The h-index is measured by *h* where, a scientist has index *h,* if *h* (number) of his or her papers have at least *h* citations each (Hirsch, 2005). This can be applied to journals as well to indicate that *h* papers published in a journal have each been cited at least *h* times by other articles. The h-index of *JL4D* is 6 (Google Scholar, n.d.). Use of *Publish and Perish* software using Google Scholar lookup too resulted in the same findings. The most cited papers of *JL4D* are listed in Table 15.

Table 14: Half-life of References in *JL4D*

Year	Frequency	Cumulative Frequency	Percentage	Cumulative Percentage
2018 (1)	41	41	1.74	0.00
2017 (2)	82	123	3.48	5.22
2016 (3)	135	258	5.73	10.94
2015 (4)	205	463	8.69	19.64
2014 (5)	189	652	8.02	27.65
2013 (6)	231	883	9.80	37.45
2012 (7)	208	1091	8.82	46.27
2011 (8) (median)	150	1241	6.36	52.63
2010	132	1373	5.60	58.23
2009	120	1493	5.09	63.32
2008	81	1574	3.44	66.75
2007	91	1665	3.86	70.61
2006	67	1732	2.84	73.45
2005	79	1811	3.35	76.80
2004	67	1878	2.84	79.64
2003	56	1934	2.37	82.02
2002	38	1972	1.61	83.63
2001	42	2014	1.78	85.41
2000	52	2066	2.21	87.62
1999	33	2099	1.40	89.02
1998	21	2120	0.89	89.91
1997	28	2148	1.19	91.09
1996	23	2171	0.98	92.07
1995	20	2191	0.85	92.92
1994	16	2207	0.68	93.60
1993	16	2223	0.68	94.27
1992	17	2240	0.72	95.00
1991	6	2246	0.25	95.25
1990	11	2257	0.47	95.72
1989	11	2268	0.47	96.18
1988	7	2275	0.30	96.48
1987	5	2280	0.21	96.69
1986	5	2285	0.21	96.90
1985	7	2292	0.30	97.20
1984	5	2297	0.21	97.41
1983	8	2305	0.34	97.75
1982	2	2307	0.08	97.84
1981	3	2310	0.13	97.96
1980	3	2313	0.13	98.09
1979	2	2315	0.08	98.18
1978	2	2317	0.08	98.26
1977	5	2322	0.21	98.47
1976	5	2327	0.21	98.69
1975	1	2328	0.04	98.73
1974	1	2329	0.04	98.77
1973	2	2331	0.08	98.85
1972	0	2331	0.00	98.85
1971	3	2334	0.13	98.98
1970	1	2335	0.04	99.02
1969	3	2338	0.13	99.15
1968	1	2339	0.04	99.19
1967	0	2339	0.00	99.19
1966	2	2341	0.08	99.28
1965	3	2344	0.13	99.41
1964	0	2344	0.00	99.41
1963	0	2344	0.00	99.41
1962	1	2345	0.04	99.45
1961-1889	13	2358	0.55	100.00
	2358		100.00	

Table 15: Most Cited Papers of *JL4D*

Papers	No. of Citations
Latchem, C. (2014). Informal Learning and Non-formal Education for Development.	44
Mwawasi, F. M. (2014). Technology Leadership and ICT Use: Strategies for Capacity Building for ICT Integration.	11
Darojat, O., Nilson, M., & Kauffman, D. (2015). Quality Assurance in Asian Open and Distance Learning: Policies and Implementation.	10
Nkuyubwatsi, B. (2016). Positioning Extension Massive Open Online Courses (xMOOCs) Within the Open Access and the Lifelong Learning Agendas in a Developing Setting.	9
Bonk, C. J., & Lee, M. M. (2017). Motivations, Achievements, and Challenges of Self-Directed Informal Learners in Open Educational Environments and MOOCs.	7
Awadhiya, A. K., &Miglani, A. (2016). Mobile Learning: Challenges for Teachers of Indian Open Universities.	6
Weller, M. (2016). The Open Flip—A Digital Economic Model for Education.	6
Ngubane-Mokiwa, S. A., & Khoza, S. B. (2016). Lecturers' Experiences of Teaching STEM to Students with Disabilities.	6
Baijnath, N. (2014). Curricular Innovation and Digitisation at a Mega University in the Developing World–The UNISA 'Signature Course' Project.	6

Note: as of February 10, 2019.

Conclusion

The bibliometric and thematic analysis of the contributions published in *JL4D* from volume one to five revealed the early years of an open access journal in the field of social science. Especially considering the focus and scope to the *Journal*, the number of items published is more than similar to comparable journals in their early days. *JL4D* has maintained the balance of different types of contributions from both Commonwealth and non-Commonwealth countries. It has been publishing relatively more items form Africa, which indicates that the *JL4D* has found a niche amongst researchers there. While only about 40% of the contributors were female during the period, there is a satisfactory degree of collaboration amongst authors. In future studies it may be useful to analyse the relationship between gender and collaboration and types of research methods used (Zawacki-Richter & von Prümmer, 2010). The content analysis of the abstracts and titles revealed that *JL4D* is focusing on educational issues in general, with a major focus on 'student learning', 'teachers and teaching' and 'contextual needs'. The sample covered in this study was too small to make a more critical analysis on the linkages of the themes covered, but the use of the computer assisted content analysis could be used in future to gain a deeper understanding of how *JL4D* is contributing to various sub-domains within the 'learning for development' field as a unique journal. Contrary to the thematic content analysis, the citation analysis revealed that the contributions are by and large influenced from the field of educational technology in general and experts in the field of open and distance learning. However, these researchers extensively used literature from a variety of journals and fields indicating that the *Journal*'s focus was still on innovations in learning, and not open and distance learning *per se*. The half-life of the references to the papers published shows that contributors of *JL4D* use information within eight years, which is more than the 6.5 years estimated by Davis and Cochran (2015), indicating that the field needs to use more of the latest research to reflect on innovations in learning. Five years is a small period in the life of an academic journal, but the study provides a bird's eye view of the *Journal*'s progress and contribution to the literature.

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