BIBLIOMETRIC STUDY OF TRENDS IN DEMAND DRIVEN ACQUISITION PUBLICATIONS

Aliyu Olugbenga Yusuf*, Noorhidawati Abdullah* and Aimi Ihsan Zaidi**
*Department of Library and Information Science, Faculty of Computer Science and Information Technology, University of Malaya
**University of Malaya Library

Abstract
This study provides an overview on the progression and development in literature on the theme of Demand Driven Acquisition (DDA) for the years ranging 1998-2016. The study embraced text mining and bibliometric analysis using the Scopus™ online database. The researchers adopted bibliometric analysis to identify the trends, progress and growth rate, authorship and collaborations pattern, author’s productivity, most cited journals articles and journal outlets on the subject as found in the database. It was discovered that publication outlets have significant relationship with journal citations. Contributions to DDA literature are majorly from authors who are librarians from varied departments of Academic libraries. The study revealed that authors from United States contributed majorly to publications on Demand Driven Acquisition, trailed by United Kingdom authors and few researchers from Asia region. There was no publication on Demand Driven Acquisition from any country in Africa.

Keywords: Demand Driven Acquisition, Patrons, Publications, Acquisitions, Patron Driven Acquisition.

1. Introduction
Traditionally, collection building is agreed to be the responsibility of librarians, which is thoughtfully carried out considering past, present and future predictions roles of collection use (Allison, 2013; McCaslin, 2013). Demand Driven Acquisition (DDA) is an evolving collection acquisition model that supports academic libraries grow their collections and at the same time meets library patrons’ growing needs. DDA is a just-in-time model of collection acquisition as oppose the just-in-case (speculative) model. The DDA model directly or indirectly incorporate library patrons as stakeholder in the process of acquisition. Demand Driven Acquisition is done by patron usually by clicking the records catalogue or sometimes using interlibrary loan (ILL) request (Bennett, 2016). Social media can also be used by librarians to implore patrons for opinions on collection purchase information (Allison, 2013).

The growth of DDA is one of the recent and exciting trends in collection acquisition (Fulton, 2014). DDA model is worthwhile and valuable as it exposes library patrons to large quantity of materials and titles. The large quantity of material available using the DDA is unthinkable compare to the previous speculative “just-in-case” model. Libraries can choose to extend or cease the program based on budget availability, and eventually purchase and own the titles that have received usage (Kwok, Chan, Cheung, & Wong, 2014).

The DDA program has been in existence in some form for decades, the advent and reception of electronic books have elevated the strategy of user-initiated selection of variety of materials as a valuable and meaningful approach for libraries to pursue (McCaslin, 2013). The worthwhileness of DDA as a concept continues to linger in the minds of librarians. Given enough resources and space, balancing DDA...
programs with attuned collection-building programs would be superlative (Herrera, 2012). Demand Driven Acquisition popularity has surged in the past few years, especially in the era of electronic book (e-book) purchasing and leasing. With growing numbers of academic libraries obliging to DDA programs, there is a growing amount of literature that examines both positive and negative impacts of this type of acquisition model on collection management in academic libraries (Shen et al., 2011).

The main aim of this study is to conduct a bibliometric study to analyse the trend and progress on Demand Driven Acquisition (DDA) research, thereby analysing articles based on year of publication, number of authors, authors’ collaboration and pattern, authors’ designations, received citations, country of origin and publication outlets. The finding of this study will be of high significance to academic libraries, particularly the academic libraries in developing countries. Academic libraries in developing countries need to see the progress in the DDA model and possibly test run and probably implement the model to achieve success in their collection development tactics despite the ongoing scare of resources and continuous cut in library budgets.

The concept “Bibliometric” was derived from the combination of words “biblio” and “metric” which are Latin and Greek words, which means book and science of measurement (metrics) respectively (Yanti Idaya Aspura M, Suzilianah, & Abdullah, 2016). Bibliometric is use to analyse academic literature and publications quantitatively. In this effort was the Science Citations Index initiated in 1962 by Institute for Scientific Information with the main aim of upholding efficient and ongoing measurement of the citation counts for scientific journals (Ponce & Lozano, 2010). The amount of citations generated by an academic publication is an indication of its impact in the academic and scientific realm. The outcomes of bibliometric analysis can give insights into factors that reinforce the role of particular studies in research area and serves as a guide for scholars to conduct and produce impactful studies (Akhavan, Ebrahim, Fetrati, & Pezeshkan, 2016).

2. Methodology

The emphasis of this study is restricted to the theme “Demand Driven Acquisition” (DDA). Data for this study was generated from Scopus™ online database. Although, the authors initially intended to generate data from both Scopus and Web of Science (WoS) databases. However, the Web of Science database generate fewer output, which is so insignificant for the study, thereby led the authors to adopt the Scopus database alone.

The outputs from Scopus and WoS was aimed for robust analysis, to compare both databases (Scopus and Web of Science) on the DDA publications. The databases were search using varied keywords for the theme Demand Driven Acquisition (DDA) before the authors concluded to use the Scopus™ database alone. Scopus database is one of the world leading and major peer-reviewed databases that houses about 18,000 titles, 41 million records, from close to 5,000 publishers around the world. Elsevier created the Scopus database, which is said to combine the characteristics of PubMed and Web of Science and tolerates improved exploration of academic literature searches, robust educational needs, medical literature search, and bibliometric analysis. Scopus online database allows for basic
and advanced search, which enhances query precisions based on some inclusion and exclusion criteria (limitations) to improve search results. The varied limitations can be in form of publication types, subject areas, publication date, countries, authors etc. (Falagas, Pitsouni, Malietzis, & Pappas, 2008).

The authors applied some basic publication inclusion and exclusion criteria. The inclusion criteria for publications includes all articles on Demand driven acquisition written in English language and within the range of 1998-2016. The exclusion criteria includes editorials, notes, erratum and publication in other languages aside English language. The syntax adopted for queries perform using certain keywords and queries syntax include:

\[
\text{TITLE-ABS-KEY} \left( \text{"Books on demand"} \right) \text{AND} \left( \text{EXCLUDE} \left( \text{DOCTYPE}, \text{"editorials"}, \text{"notes"}, \text{"erratum"} \right) \text{OR} \text{EXCLUDE} \left( \text{DOCTYPE}, \text{"ed"} \right) \right) \text{AND} \left( \text{EXCLUDE} \left( \text{SUBJAREA}, \text{"CENG"} \right) \right)
\]

\[
\text{TITLE-ABS-KEY} \left( \text{"Demand Driven Acquisition"} \right) \text{AND} \left( \text{EXCLUDE} \left( \text{DOCTYPE}, \text{"editorials"} \right) \text{OR} \text{EXCLUDE} \left( \text{DOCTYPE}, \text{"ed"} \right) \right) \text{AND} \left( \text{EXCLUDE} \left( \text{SUBJAREA}, \text{"CENG"} \right) \right)
\]

\[
\text{TITLE-ABS-KEY} \left( \text{"DDA"} \right) \text{AND} \left( \text{EXCLUDE} \left( \text{DOCTYPE}, \text{"editorials"}, \text{"notes"}, \text{"erratum"} \right) \text{OR} \text{EXCLUDE} \left( \text{DOCTYPE}, \text{"ed"} \right) \right) \text{AND} \left( \text{EXCLUDE} \left( \text{SUBJAREA}, \text{"CENG"} \right) \right)
\]

\[
\text{TITLE-ABS-KEY} \left( \text{"Books on demand"} \right) \text{AND} \left( \text{EXCLUDE} \left( \text{DOCTYPE}, \text{"editorials"} \right) \text{OR} \text{EXCLUDE} \left( \text{DOCTYPE}, \text{"ed"} \right) \right) \text{AND} \left( \text{EXCLUDE} \left( \text{SUBJAREA}, \text{"CENG"} \right) \right)
\]

\[
\text{TITLE-ABS-KEY} \left( \text{"Books on demand"} \right) \text{AND} \left( \text{EXCLUDE} \left( \text{DOCTYPE}, \text{"no"} \right) \text{OR} \text{EXCLUDE} \left( \text{DOCTYPE}, \text{"notes"} \right) \right) \text{AND} \left( \text{EXCLUDE} \left( \text{SUBJAREA}, \text{"CENG"} \right) \right)
\]

\[
\text{TITLE-ABS-KEY} \left( \text{"Books on demand"} \right) \text{AND} \left( \text{EXCLUDE} \left( \text{DOCTYPE}, \text{"erratum"} \right) \text{OR} \text{EXCLUDE} \left( \text{DOCTYPE}, \text{"ed"} \right) \right) \text{AND} \left( \text{EXCLUDE} \left( \text{SUBJAREA}, \text{"CENG"} \right) \right)
\]

### 3. Results

#### 3.1 Number of publications per year

The first trend encapsulates the time trend of DDA publications, these period ranges within 1998-2016. As illustrated in Figure 1, the numbers of DDA publications from inception remain unsteady over the years and with substantial increase in publications from 2010 onward. This upsurge may be an indication that the evolving DDA has continue to draw attention from authors. The figure further illustrates the trend in Demand Driven Acquisition publication in the Scopus online database. The highest number of publication (30) was published in 2013, which account for 19.11% of the total (157) publication on DDA in the database after excluding some publications. The criteria for inclusion and exclusion of publication are that all types of materials were included except editorials, notes and erratum. There was no publication on DDA in 2009 while the subsequent year gathered 19 publications, which amount to 10.1% of the total DDA publication in the study. Only ten (10) publications were recorded for year 2016, which is a decline from the previous year (2015), which recorded 19 publications.
Figure 1. Number of DDA Publications per year

3.2 Most cited Article

The researchers conducted further analysis to explore the most cited articles in DDA publications from the database. The analysis was restricting to twenty (20) articles with the highest number of citations. The highest cited article in the database is titled “Patron-initiated collection development: Progress of a paradigm shift” which generates 33 (4.61%) citations of the total (715) citations. This was trailed by “Patron-driven acquisitions: An introduction and literature review” which also generated 28 (3.92%) of the total citations. Some other articles generated citations ranging from 12-27 citations. About 40 articles gathered less than four citations while, several other articles, about 70 never attracts any citations, thus compute the average citation to 4.55. The total percentage for these twenty (20) articles with most citations is 383 (54.01%) which is bit more than half of the total number of citations.

Table 1. Twenty (20) most cited Demand Driven Acquisition articles

<table>
<thead>
<tr>
<th>Article Title</th>
<th>Number of times cited</th>
<th>Citation Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Patron-initiated collection development: Progress of a paradigm shift</td>
<td>33</td>
<td>4.61</td>
</tr>
<tr>
<td>2 Patron-driven acquisitions: An introduction and literature review</td>
<td>28</td>
<td>3.92</td>
</tr>
<tr>
<td>3 Give ’em what they want: A one-year study of unmediated patron-driven acquisition of e-Books</td>
<td>27</td>
<td>3.78</td>
</tr>
<tr>
<td>4 Developing a multiformat demand-driven acquisition model</td>
<td>26</td>
<td>3.64</td>
</tr>
<tr>
<td>5 Patron-driven acquisition and the educational mission of the academic library</td>
<td>24</td>
<td>3.36</td>
</tr>
<tr>
<td>6 Resolving the challenge of e-books</td>
<td>24</td>
<td>3.36</td>
</tr>
</tbody>
</table>
3.3 Number of individual cited authors

Analysis for the most cited individual authors for the DDA publication was explored based on the publications generated from the database retrieval. The most cited individual author was Levine-Clark M. who gathered 26 (3.64%) citations. The most cited author was trailed by Walters W.H. who also gather 24(3.36%) citations. Another author Ruppel M. also got 17(2.38%) citations. Several other authors also gathered citations ranging from 7-15 citations, while others gathered less than 7 citation as authors of DDA publication.
3.4 Authors designations and collaboration

Majority of the authors of Demand driven Acquisitions research are librarians working mostly in varied department and units of various academic libraries. The trend demonstrates that some of librarians collaborated with academic staff in the Department of Library and information of universities to publish articles on the concept of DDA as practiced by their individual universities. Authors also emerge from various research centres within and outside the universities settings, such as Cancer Research Centre, University Knowledge Centre, Centre for Environmental Strategy.

Other authors of DDA are noticed to have emerged from Law School, IBM Research, IBM Learning Services, Sage Publications, EBSCO Information Services and so on. It was revealed that publications by authors from libraries gathered most citations and trailed by the academic staff in Departments of Library and Information sciences of various universities.

3.5 Publication outlets with highest citation

Several journal outlets have published on the concept of Demand Driven Acquisition. However, the publication outlets with highest number citation is Journal of Collection Management. This outlet generated 343 citations, which is equivalent to 47.97% of the total citations. The percentage of citations generated by the Journal of Collection Development is almost half of the total citations in the study. The rationale behind Journal of Collection Development having the highest citations may be due to DDA association with collection development and management, which is the major scope of the journal. The journal that received the next highest number of citations is Journal of Interlibrary Loan, Document Delivery and Electronic Reserve, which also generated 57 (7.97%) citations. These citations generated by Journal of Interlibrary Loan, Document Delivery and Electronic Reserve is far less compare to the former.

researchhub.uitm.edu.my
outlet. Nonetheless, Journal of Library Resources and Technical Services trailed by generating citations amounting to 48 (6.71%) of the total citations. Other outlets gathered citations ranging from 15-42 citation thereby computing the average citation for journal outlet to be 15.

Table 2. Publication outlets with highest citations

<table>
<thead>
<tr>
<th>Journal Outlets</th>
<th>Cited</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Collection Management</td>
<td>343</td>
<td>47.97</td>
</tr>
<tr>
<td>2 Journal of Interlibrary Loan, Document Delivery and Electronic Reserve</td>
<td>57</td>
<td>7.97</td>
</tr>
<tr>
<td>3 Library Resources and Technical Services</td>
<td>48</td>
<td>6.71</td>
</tr>
<tr>
<td>4 Journal of Business and Finance Librarianship</td>
<td>42</td>
<td>5.87</td>
</tr>
<tr>
<td>5 Collection Building</td>
<td>34</td>
<td>4.76</td>
</tr>
<tr>
<td>6 College and Research Libraries</td>
<td>31</td>
<td>4.34</td>
</tr>
<tr>
<td>7 Serials Librarian</td>
<td>29</td>
<td>4.06</td>
</tr>
<tr>
<td>8 Library Collections, Acquisition and Technical Services</td>
<td>21</td>
<td>2.94</td>
</tr>
<tr>
<td>9 New Library World</td>
<td>19</td>
<td>2.66</td>
</tr>
<tr>
<td>10 Technical Services Quarterly</td>
<td>15</td>
<td>2.10</td>
</tr>
</tbody>
</table>

3.6 Publication Outlets with Highest Numbers of Article

Serenko and Bontis’s study as cited in (Akhavan et al., 2016), stated that outlets where articles are published, makes it easily accessible to other researchers. This can directly influence its visibility and subsequently the number of times cited by other authors in their studies.

Referring to Tables 2 and 3 above, the tables show relationship between the journal publication outlet and the number of citations. The previous table indicated that Journal of Collection Management produce the highest number of publication on DDA research, which amounted to 23 (14.64%) publication. This journal also received the highest number of citations with 343(47.97%) citations. Therefore, the Collection Management Journal is most accessible and most cited outlet as far as DDA research is concern. This shows a significant relationship between publication outlets and citations as far as this study is concern. The journals with subsequent number of publications are Journals of Deutscher Drucker Stuttgart and Journal of Interlibrary & Document Supply which gathered 13 (8.28%) of publication each. However, these journals have less than the average number of citations. Trailed are Journal of Interlibrary Loan, Document Delivery and Electronic Reserve, Library Resources and Technical Services, Serials Librarian, Technical Services Quarterly published 8(5.6%) publications each. While, Journal of collection building published 7 publications that amounts to 4.46% of the total publications. Based on the Table 2, it was shown that Journal of Collection Building generated 34 (4.7%) citations, which made the journal outlet rated among the top 5 outlets with highest citation on DDA. The scope of this journal is also collection development and management, which is similar to the theme of this study.
Table 3. Publication outlets with highest numbers of article

<table>
<thead>
<tr>
<th>Source Title</th>
<th>Number of Publication</th>
<th>Publication Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Collection Management</td>
<td>23</td>
<td>14.64</td>
</tr>
<tr>
<td>2 Deutscher Drucker Stuttgart</td>
<td>13</td>
<td>8.28</td>
</tr>
<tr>
<td>3 Interleading &amp; Document Supply</td>
<td>13</td>
<td>8.28</td>
</tr>
<tr>
<td>4 Journal of Interlibrary Loan, Document Delivery and Electronic Reserve</td>
<td>8</td>
<td>5.6</td>
</tr>
<tr>
<td>5 Library Resources and Technical Services</td>
<td>8</td>
<td>5.6</td>
</tr>
<tr>
<td>6 Serials Librarian</td>
<td>8</td>
<td>5.6</td>
</tr>
<tr>
<td>7 Technical Services Quarterly</td>
<td>8</td>
<td>5.6</td>
</tr>
<tr>
<td>8 Collection Building</td>
<td>7</td>
<td>4.46</td>
</tr>
<tr>
<td>9 Evidence Based Library and Information Practice</td>
<td>5</td>
<td>3.18</td>
</tr>
<tr>
<td>10 College and Research Libraries</td>
<td>4</td>
<td>2.55</td>
</tr>
<tr>
<td>11 Journal of Electronic Resources Librarianship</td>
<td>4</td>
<td>2.55</td>
</tr>
<tr>
<td><strong>Others</strong></td>
<td><strong>56</strong></td>
<td><strong>33.66</strong></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>157</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

3.7 Countries of DDA publication

The table and graph illustrate a comprehensive picture of DDA research across different countries. The study identifies 12 countries that published an article on DDA within 1998-2016. However, there are 17 number of publications from undefined countries. This means that these publications were generic studies as there was no indication of the country of the study. The United State has the highest number of publications on DDA research published with 106 (67.5%) numbers of publications. The United Kingdom fall behind with 15 publications (9.55%). Canada has seven (4.46%) DDA publications, while Malaysia has 3 (1.91%) and Germany with only two (1.27%) publications. The lowest countries that published on DDA research include France, Hong Kong, Ireland, Netherlands, Palestine, Estonia and Brazil with a single (0.64%) publication each. African countries including South Africa, Botswana, Nigeria, and others have no research or publication on DDA. According to Scimago Journal and Country rank, by total, United State has the highest published documents. If we filtered by the Library and Information Sciences subject, United State have contributed highest number documents in this field followed by the United Kingdom, China and Canada. This is an indication that United State contributes the highest documents in Scopus both in Library Science field and in DDA research.

Table 4. DDA Publications by countries

<table>
<thead>
<tr>
<th>Countries</th>
<th>Number of Publications</th>
<th>Publication Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>US</td>
<td>106</td>
<td>67.5</td>
</tr>
<tr>
<td>Undefined</td>
<td>17</td>
<td>10.83</td>
</tr>
</tbody>
</table>
UK  |  15  |  9.55  
Canada  |  7  |  4.46  
Malaysia  |  3  |  1.91  
Germany  |  2  |  1.27  
France  |  1  |  0.64  
Hong Kong  |  1  |  0.64  
Ireland  |  1  |  0.64  
Netherlands  |  1  |  0.64  
Palestine  |  1  |  0.64  
Estonia  |  1  |  0.64  
Brazil  |  1  |  0.64  
**Total**  |  **157**  |  **100**  

**Figure 3. DDA Publications by countries**

4. Conclusion

Demand Driven Acquisition is a modern and revolutionary model and practice in collection acquisition and management. This study adopted bibliometric analysis as a basis for comparing, evaluating and utilizing of scientific input and output of DDA research. The study explores Scopus databases to analyse varied issues as regards DDA. The study finds exciting trends in the growth of DDA over time. Both library and library patrons have controlled access to wide range of collections (materials) which is unlikely to be thinkable in the previous speculative collection development model. The exploration from this study has made it clearer that DDA model has been in existence for more than a decade, though with less popularity and attention from both librarians and researchers. Nevertheless, with growth in the
population of libraries and recent cut in library budgets owing to economic recession and downtrend, the model is becoming a consideration as far as collection acquisition and management is concern.

Authors from United States have contributed more to research and publication on DDA and received the highest number of citations. There is a significant collaboration between Academic Librarians and lecturers from the Department of Library and Information Science of the universities. The study revealed that Africa countries do not have researches and publications on Demand Driven Acquisition model.

Hence, academics and librarians from other countries especially Africa nations should in earnest consider research on DDA by first exploring the concept and adapting it to their various institutions. This will further enrich their library collection and reduce cost of subscriptions, especially in this era of budget cut and economic downtrends.

References


Shen, L., Cassidy, E. D., Elmore, E., Griffin, G., Manolovitz, T., Martinez, M., & researchhub.uitm.edu.my