

Analyzing Open Access Impact to Learning Spaces

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Abstract: This paper gives an overview of the inception of open access journal production and support at The University of North Carolina at Greensboro, with a focus on the *Journal of Learning Spaces*. The journal brings together editorial board members and authors from academic departments, university libraries, teaching and learning centers, student affairs offices, information technology units, and related groups at academic and research institutions around the country and across the world, with the common goal of developing, sharing, and enriching the scholarship of learning spaces. The methodology used for this analysis was citation analysis of each article and data gathering of keyword frequency, and number of views or hits on each article. The paper also discusses roles and skills needed for journal success, challenges involved in the creation of open access resources, and benefits to both hosting institutions and the broader communities of participants and readers.

Keywords: learning spaces, open access, assessment, international, classroom, environment, citation analysis

1. Introduction

The Journal of Learning Spaces, <http://libjournal.uncg.edu/jls> (JOLS) is an open access journal published by the University Libraries at the University of North Carolina at Greensboro since 2011. This journal is free for authors, subscribers and related contributors, and is published on an open platform hosted by the libraries and staffed with volunteers from a broad interest group to complete peer review, copy editing and layout duties. The journal has published an average of 8+ pieces a year which includes research manuscripts, position pieces, case studies and reviews. Assessment activities are periodically conducted on features and readership of the journal in order to determine impact and provide data for making modifications as needed to elements of the journal or production protocols in order to best serve the needs of the user community. This paper outlines the most recent assessment with conclusions on modifications to present to the advisory board for improvements.

2. About the Journal

Since 2011, the *Journal of Learning Spaces* has been published in an open access environment using OJS software freely distributed by the Public Knowledge Project (PKP). PKP is a multi-university initiative developing (free) open source software and conducting research to improve the quality and reach of scholarly publishing and is used by the University Libraries at the University of North Carolina at Greensboro for multiple disciplines as well as learning spaces (<http://libjournal.uncg.edu/>). These journals are free for authors, subscribers and related contributors and staffed with volunteers from a broad interest group to complete peer review, copy editing and layout duties. The journal has published an average of 8+ pieces a year which includes research manuscripts, position pieces, case studies and reviews.

In nine years, the journal has published 16 issues with 103 articles, the latest issue was published in May 2020 with 2 other issues planned for the year. The *Journal of Learning Spaces* provides a scholarly, multidisciplinary forum for research articles, case studies, book reviews, and position pieces related to all aspects of learning space design, operation, pedagogy, and assessment in higher education. The journal was originally conceived from a learning spaces interest group on campus that researched literature on higher education space design but found what was available to be lacking in non-commercialized research and thus sought to provide a forum for a broader perspective of research and case studies to enhance the discipline.

Within the journal, learning is defined as the process of acquiring knowledge, skill, or understanding as a result of study, experience, or teaching. Learning spaces are designed to support, facilitate, stimulate, or enhance learning and teaching. Learning spaces encompass formal, informal, and virtual environments:

- formal: lecture halls, laboratories, traditional classrooms
- informal: learning commons, multimedia sandbox, residential study areas, huddle rooms
- virtual: learning management systems, social media websites, online virtual environments

JOLS invites submissions of practical and theoretical works from practitioners and academics across a wide range of subject disciplines and organizational backgrounds, including Architecture, Interior and Product Design, Education, Information and Library Science, Instructional Technology, Sociology, and Student and Residential Life. Submissions usually focus primarily on learning spaces and their impact on or relationship to teaching and learning.

The *Journal of Learning Spaces* is an Open Access journal which means that all content is freely available without charge to the user or his/her institution. Users

are allowed to read, download, copy, distribute, print, search, or link to the full texts of the articles, or use them for any other lawful purpose, without asking prior permission from the publisher or the author. This is in accordance with the BOAI definition of Open Access. *JOLS* is also indexed with the Directory of Open Access Journals.

3. About the Assessment

The motivation for creating assessment activities during the course of publications is to ensure that appropriate standards are being met, as well as determine a connection between readers and authors as it applies to the scope intended from the journal's creation. A previous assessment produced a Wordle shown below (Figure 1) that shows the key word frequency in demonstrating the journals focus and interest and is currently used as the logo:



Figure 1 – Original Wordle

As the journal approached its 10-year mark, another study was developed to consider any needed modifications or tweaks to the process moving forward. Motivations for a new study included:

- Consider any needed updates to policies, procedures, scope and advisory board membership based on interest
- Understand use of journal content through citation analyses
- Consideration to changing the name to include recognition of international contributors
- Provide data for use in marketing the journal broadly but also to provide tools and guidelines for authors

The first method of study was to gather statistics on the number of views for both the abstracts and the full PDF. This was gathered by issue to determine readership and interest. For an open access journal readership and the number of hits, or the amount of interest can be important to determine impact, not just citations alone (Chua, et.al., 2017).

The views (Table 1 & 2) listed below demonstrate strong interest in readership driven by key word search features and trending topical interest:

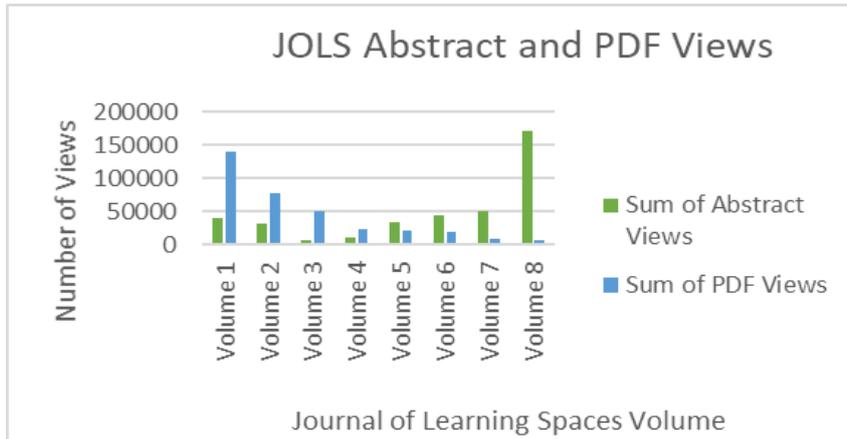


Table 1 – Graphed views

<i>Published Year</i>	<i>Minimum</i>	<i>Maximum</i>	<i>Mean</i>	<i>Standard Deviation</i>
2011				
Abstract Views	1690	5768	2626	1077
PDF Views	2492	21961	9276	7249
2012				
Abstract Views	1717	10566	2940	2602
PDF Views	760	31735	7075	9515
2013				
Abstract Views	1657	2073	1830	192
PDF Views	2349	23023	13117	11338
2014				
Abstract Views	2015	2628	2340	232
PDF Views	4270	32741	12750	11542
2015				
Abstract Views	1947	3574	2422	554
PDF Views	972	3832	1554	878

Table 2 – Numeric data

The next analysis was at the citation level (Table 3& 4) to determine how the use of the journal can be continuous and easily available due to open access (White, 2019) for future study. Part of this was to determine the open access

influence on research as a trend toward the use of open access journals to avoid financial bias in research and publication (Nazim, M., & Ashar, M., 2018).

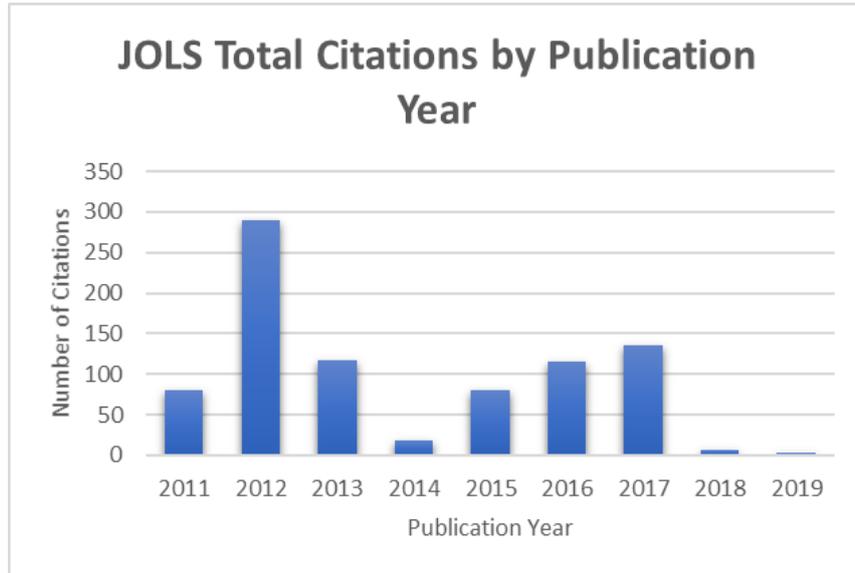


Table 3 – Citations by Year graph

Date of Publication	Citation Totals
2011	81
2012	289
2013	117
2014	19
2015	80
2016	116
2017	135
2018	7
2019	3

Table 4 – Citations by Year Numeric

These 847 citations across 97 articles represent strong interest and use of this open source set of product and considering that this is also indicating that 94%

of the articles published have been cited is a strong indicator that the journal is researching a market that finds this information useful. This data was collected from Google Scholar and ERIC.

A drill down of information also includes the type of space that is addressed in the article and how many times that is cited. This information is useful in promoting the journal to specific topics for related resources as a source of information. Table 5 shows the frequency that the type of space appears.

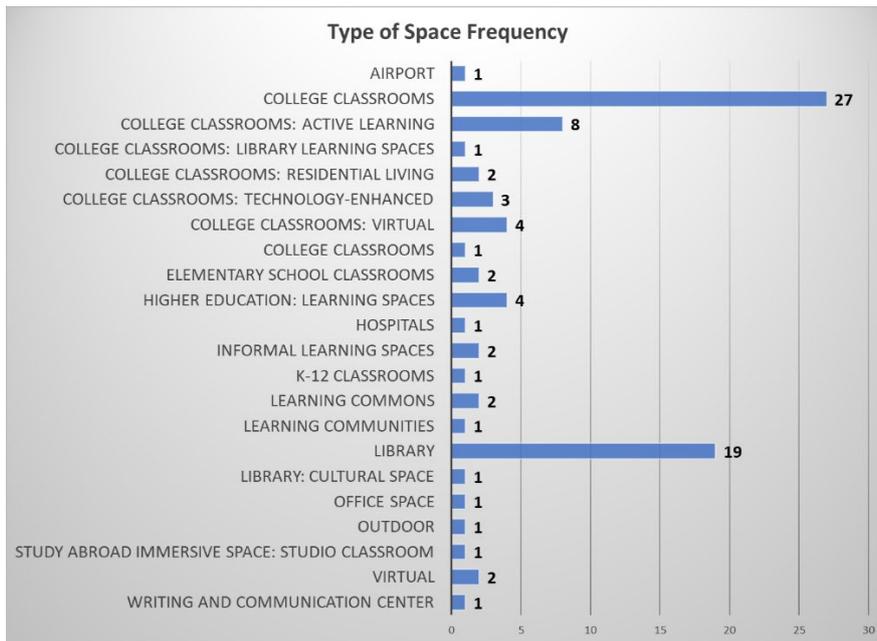


Table 5 – Type of Space Frequency Cited

4. International Expansion

The international aspect of the assessment produced useful results for expanding the marketing aspect of solicitation for peer reviewers and contributors. Although the number of article contributions has been dominated by authors from the United States, there is strong evidence that an increasing number of contributions come from outside the United States giving the discipline of learning spaces an international audience. This strongly suggests that a change of name could increase international interest and participation.

This Google Map(Figure 2) (Mitchell, 2020) shows a broad view of contributors across the globe:

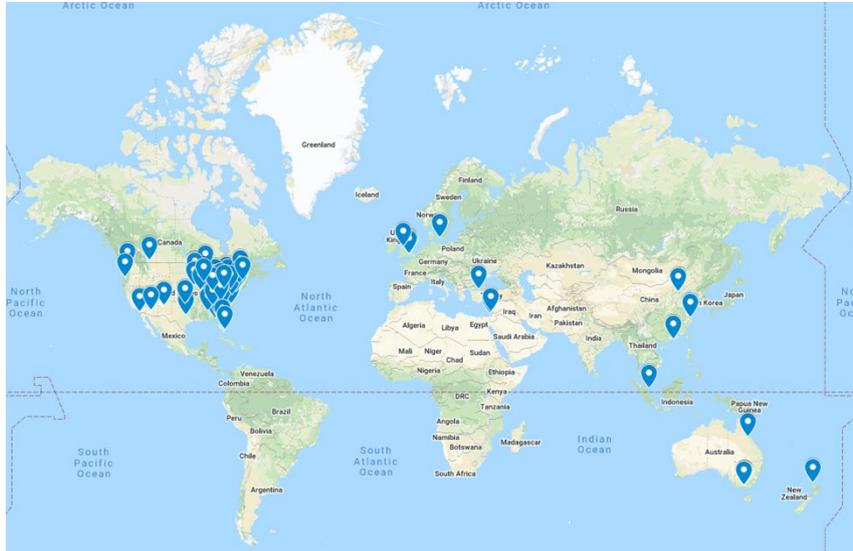


Figure 2 – Map of Global Contributors

In identifying the country of origin as well as the contributor’s institutions it can be noted that the opportunity to grow and expand this international perspective is real. Table 6 shows contributions by county which is trending upward for varied origins.

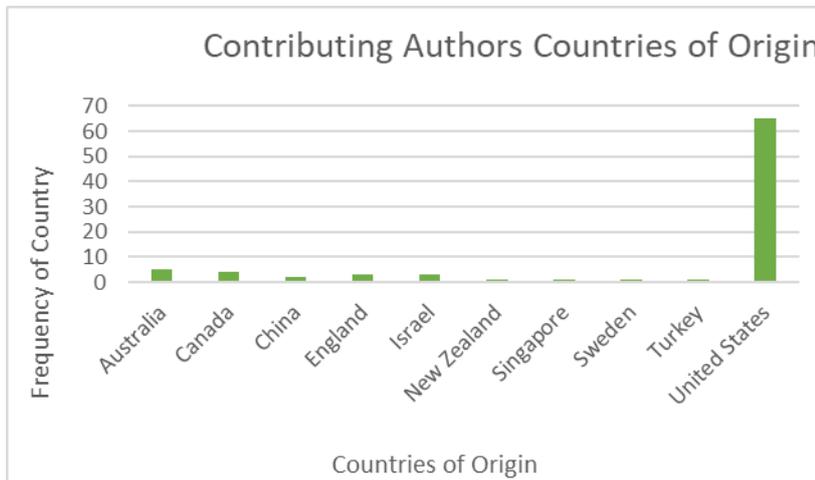


Table 6 – Contributions by County

Keyword	Count	Keyword	Count
classroom design	24	academic libraries	7
college students	24	classrooms	7
school space	24	design	7
active learning	22	informal education	7
college faculty	22	qualitative research	7
student attitudes	21	cooperative learning	6
foreign countries	17	focus groups	6
space utilization	16	library facilities	6
undergraduate students	16	observation	6
teacher attitudes	15	outcomes of education	6
learner engagement	13	physical environment	6
case studies	12	teaching methods	6
classroom environment	12	telecommunications	6
educational technology	12	educational facilities design	5
educational environment	11	statistical analysis	5
student surveys	9	student centered learning	5
furniture	8	student experience	5
higher education	8	teacher student relationship	5

Table 7 - Keywords included in the word cloud (36 words)

Finally, to address what helps drive numbers for each year, a list of top articles per issue is provided to create an antidotal view of research interest (Table 8). These are the top cited articles in each publication year which could mimetic current trends for that year.

Article ID	Article Title	Issue	Abstract Views	PDF Views
277	Use of swivel desks and aisle space to promote interaction in mid-sized college classrooms	Volume 1, Issue 1 (2011)	3770	14574
392	Learning spaces attributes; Reflection on academic library design and its use	Volume 1, Issue 2 (2012)	2899	21961
578	Classroom seating considerations for 21st century students and faculty	Volume 2, Issue 1 (2013)	10565	16977
506	Indoor environmental quality of classrooms and student outcomes: A path analysis approach	Volume 2, Issue 2 (2013)	2418	31735
714	Collaborative knowledge creation in the higher education academic library	Volume 3, Issue 1 (2014)	2073	23023
1046	Learning theory expertise in the design of learning spaces: Who needs a seat at the table?	Volume 4, Issue 1 (2015)	2284	32741
1213	Research-informed principles for (re)designing teaching and learning spaces	Volume 5, Issue 1 (2016)	3574	3832
1247	What drives student engagement: it is learning space, instructor behavior or teaching philosophy?	Volume 5, Issue 2 (2016)	3172	2034
1339	Student perceptions of a 21st century learning space	Volume 6, Issue 1 (2017)	3489	2356
1398	Connecting physical university spaces with research-based education strategy	Volume 6, Issue 2 (2017)	2365	69253
1525	Measuring social relations in new classroom space: Development and validation of the social context and learning	Volume 6, Issue 3 (2017)	3114	1570
1601	Classroom interaction redefined: Multidisciplinary perspectives on moving beyond traditional classroom spaces to promote student engagement	Volume 7, Issue 1 (2018)	1733	931
1667	Belonging in space: Informal learning spaces and the student experience	Volume 7, Issue 2 (2018)	10536	1145
1786	Alphabet-board display as part of the classroom learning space	Volume 8, Issue 1 (2019)	8508	1332
1791	Evaluation of engagement in learning with within active learning classrooms: does novelty make a difference?	Volume 8, Issue 2 (2019)	20135	589

Table 8 – Yearly Top Articles

5. Marketing Implications

Research has already been conducted on the impact of open access journals on research activities. Huang, et. al., 2019, discuss how open access can enhance a journal impact factor, especially in countries that are less developed from a financial perspective. This is also strengthened when contributors are from or publish in a venue that is from the researcher's ethnic culture or relationship.

Opportunities exist to broaden the international marketing efforts for both readership and contributions to content. Starting with international contributors' home institutions and expanding their circle of influence would be a starting point.

Social media marketing of open access publications by both the publisher and the contributor can improve access to research data and also widen the opportunity for others to contribute in an informed arena of information. Not only does this create a financial benefit but also one of timing with the use of open access channels that can be processed quicker.

Open access can provide immediate digital access for authors to promote their work through academic social network sites such as Academia.edu and ResearchGate, (Marland, 2017). Overall this can provide sustainable, financially feasible and timing growth and development of any discipline.

It should be noted that competition over information published related to learning spaces is covered across several options including *Planning for Higher Education*, published by the Society of College and University Planning, *SPACES4LEARNING*, published by 1105 Media (previously *College Planning & Management*) and articles published by *EDUCAUSEReview* have financial consequences attached. Those financial models include subscription costs, membership costs and the pressure of advertising considerations to offset the cost of publications. This could impact the editorial focus of these competitors to an open access freedom of a broader scope.

6. Conclusions

The purpose of this analysis was to provide some data in which to develop improvements in the production of the open access *Journal of Learning Spaces*. This is also timely due to the COVID-19 pandemic at this writing and the additional benefits of open access publishing highlighted from the COVID impact on higher education, which needed to rely stronger on electronic resources as teaching and research models changed (Tavernier, 2020).

In this assessment the following was learned from the motivation to assess in the first place:

- There are opportunities to update the *JOLS* scope to broaden space topics to cover additional aspects of learning spaces in accordance with topics favored in this data
- The use of the journal seems popular enough to consider applying additional resources in order to better met timing goals, increase number of issues published each year and continue an aggressive peer review process to ensure credibility of content
- The international contribution has reached a point that consideration should be given to updating the title and/or promoting in international venues that would interest additional international contributors
- Data is now available to drive more marketing activity from both an institution point of view but also by individual contributors in promoting their work and inviting more collaboration on their topics of interest

The *Journal of Learning Spaces* is published in a volunteer environment by individuals who have an interest in providing more exposure for the discipline. This assessment has helped provide data and insight to motivate the publishing team to continue this work and grow the discipline in a responsible way.

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