Journal of Learning Spaces Assessment Report

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The purpose of this assessment report is to analyze *The Journal of Learning Spaces* citation data in order to see the impact the journal's content is making in learning communities. A similar report was conducted in 2017 and an update of data was desired to effectively see the impact since the journal's 2011 foundation. The data analyzed in this report are collected from Google Scholar, ERIC database, and the viewing data from Journal of Learning Spaces' files.

This assessment report also evaluates the nature of the open access landscape, how it impacts the overall global community, and how the COVID-19 pandemic is promoting the value of open access research.

Introduction

The Journal of Learning Spaces is a peer-reviewed, open access journal which began publishing articles in 2011. Since then open access journals are more widely accepted throughout the scholarly community. *The Journal of Learning Spaces* believes open access is vital in supporting a greater global exchange of knowledge to the public. Providing free content to the user without charge is essential to spreading information that can help users learn.

When considering open access, it is important to assess the impact the journal has on the wider community – specifically how the information is accessed; the amount an article is cited; who is contributing to the journal; and how the articles are discovered. This kind of assessment will inform how to move forward with the publication in terms of how articles are promoted and what strategies work best for discovery. The first assessment of *The Journal of Learning Spaces* was conducted in 2017 and this 2020 assessment builds upon the knowledge gathered from three years ago.

In this article, information about open access research will be discussed and how important it is to support and invest in open access educational resources, like this journal. Following the discussion, the 2020 assessment of *The Journal of Learning Spaces* will review how the journal progressed since 2017 and what trends the journal is encountering. The data in this assessment will be the catalyst to make changes going forward to further enhance this journal.

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Literature Review

Open access research is an ever-changing facet of the overall scholarly community. The open access movement formally started in 1993 (Tennant et al., 2016). The need for open access journals and research is growing at a rapid pace as formal publishers' subscription costs are unsustainable for most institutions. The subscription costs are also a major barrier to the general public. Overall, there is "widespread dissatisfaction" with the traditional subscription narrative and now there is a push for more open access content (Tennant et al., 2016). An increase in open access content will benefit the greater societal community and will create larger engagement with research materials. The impacts on society are invaluable as anyone with access to the Internet and is able to find and read the materials has the opportunity to interact with academic and scientific research (Tennant et al., 2016). Research should not be exclusive to higher education communities – society cannot grow and learn if paywalls and access barriers stay intact.

Relying on open access research is the globe's current reality in 2020. The global pandemic COVID-19 turned everyone's world upside down; an illness with no means of medicinal protection In an age of digital information and rapid research, the traditional subscription based vendors have broken down their barriers and opened their scientific journals to convey information regarding discoveries on the pandemic. COVID-19 began spreading in Wuhan, China at the end of 2019, but the spread intensified in the United States at the end of February into the beginning of March. Since March 2020, publishers such as Britain's Biochemical Society, Springer's *Nature*, and Elsevier's *Neuron* opened their subscription-based journals to become open access during this unprecedented time (Grove, 2020). Publishers

lifting paywalls is a step in the right direction; however, it is yet to be determined if they will continue with this model.

In order to create a more informed and engaged society, the scholarly conversations cannot begin and end with scholars and formal researchers. New found discoveries, academic discourse, and curiosities should not be limited to those dedicated to higher education as a profession. In fact, access to open research and open data provides information to everyone without exception, assumptions, or prejudices and helps society become more educated and informed (Tennant et al., 2016). Open access research opens up more learning opportunities for the general public and it also creates more avenues for open access articles to be discovered and promoted. While open access is not a new concept, it is still gaining traction in the academic world in terms of tenure and promotion (Hurell & Meijer-Kline, 2011; Odell, Coates, & Palmer, 2016).

Publishing research is a major component of receiving tenure at most higher education institutions. Open access journals have endured the stigma that their review process is not rigorous enough to be considered acceptable for tenure and that their publishing standards are lower than traditional subscription-based journals (Hurrell & Meijer-Kline, 2011; McKiernan et al., 2016). However, those stigmas and assumptions are not true. Several open access journals require article submissions to go through an intense, transparent peer review process (McKiernan et al., 2016). Open access journals, such as *F1000 Research*, *PeerJ*, and *Royal Society Open Science*, offer authors the option to publish the entirety of the peer review process with the accepted article (McKiernan et al., 2016). Still, open access publications are highly criticized and devalued against traditional publications, and yet, traditional publications are not immune to mistakes made within the peer-review process. In 2014, Springer and IEEE retracted over 100 published fake articles (McKiernan et al., 2016). Articles published in open access journals have the benefit of submitting the full peer review process to academic committees for tenure. Additionally, open access allows for researchers to achieve increased visibility through social media shares, potential collaborations with other researchers, and higher citation rates (Tennant et al., 2016; McKiernan et al., 2016). Publishing in open access journals is gaining recognition with academic committees for tenure and promotion.

A gap in the literature surrounding open access resides in how open research benefits more than just the science and medical communities. There is a substantial amount of literature supporting the push for science-based journals to be open access; however, there is a need for open access publications in the arts and humanities. Non-science journals, such as *The Journal of Learning Spaces*, are essential to the learning of other academic and general public communities. Educators constantly research how to change the landscape of their classroom in order to promote more effective learning. In the wake of COVID-19, educators and parents will want to research how to safely set-up a classroom in accordance with social distancing guidelines. Yes, some of that information will stem from science journals with hard data on the virus and its implications, but information and studies done within classrooms settings will be vital research to learn from. COVID-19 turned online video platforms, such as Zoom, Microsoft Teams, and Blackboard Collaborate Ultra, into the only safe learning spaces for people to effectively learn. Beyond COVID-19, access to open research on societal constructs, current events, reading comprehension, learning modalities, and historical events will be important for the growth of an education and informed society.

COVID-19 and its Impact on Open Access

The COVID-19 pandemic is impactful in many ways throughout the global; however, COVID-19 had a positive effect on traditional publishers. The pandemic disrupted everything in its wake and yet it uplifted the value of open access research over the traditional pay-to-view publishers. Dismantling barriers to essential information the public relied on to navigate through the pandemic and its uncertainty demonstrated the value of open access research (Tavernier, 2020). In addition to traditional publishers allowing open access publishing on new findings about the virus, vendors also offered free access to their educational resources for a certain amount of time (Tavernier, 2020). Vendors, such as RedShelf and Vitalsource, offered free access on their e-learning platforms to students in the spring 2020 semester in order to off-set expensive textbook costs. Students left their college campuses in a fury and likely left some of their textbooks behind, so this was the vendors' solution. The vendors placed more value on opening up their platform to allow students to access the necessary educational resources for their courses in a time where nothing was certain or easy rather than doubling-down on requiring payment for the resources. By their actions, vendors are demonstrating that providing educational, peer-reviewed information in an open access platform is at the benefit of our society (Tavernier, 2020). Whether it is allowing access to educational course resources or scientific data on a deadly virus, there is an unmatched value in open access.

An issue the open access community encountered during the beginning of the pandemic is through some preprint servers. The peer-review process is known to be lengthy and rigorous, which typically slows the publishing process and access to crucial information. Preprint servers alleviate the slow process by allowing a "quick exchange of information.
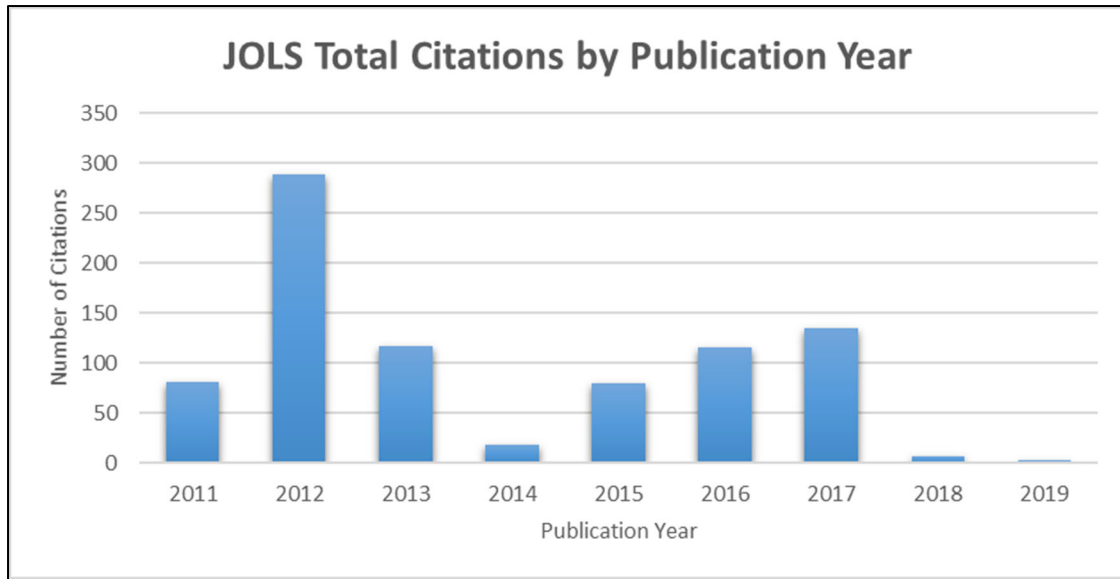
Figure 1. **Column chart showcasing the citations per year**

However, the reduction of quality control can lead to the spreading of misinformation creating additional problems that could originally be addressed during the peer-reviewing procedure," (Rios et al., 2020, p. 2). The preprint servers likely give the open access community a bad reputation when misinformation is leaked through, but it does not take away from the value of free access to information that is potentially life-changing. These instances also do not reflect on the open access journals that participate in rigorous peer-review processes before publication.

The main, and most pressing, question as a result of this movement is: what happens when the pandemic is over? When herd immunity is achieved and majority of the population is vaccinated, will traditional pay-to-view publishers continue to break down their barriers to peer-reviewed information? There is a strong movement toward Hybrid models in the publishing world, which combines open access and traditional subscription-based plans (Nestor et al., 2020). The Hybrid models are a step in the right direction, but is it enough? As aforementioned, various "locked" providers opened their information gates at the start of the pandemic, but the need for free access to information does not end when the global health crisis ends. An engaged and informed society must go beyond the scholarly community and providing the opportunity to access participate in these scholarly conversations will continue to enhance the value of open access information (Tavernier, 2020). The COVID-19 pandemic effectively informed the global community about the power of freely available (scientific) information. Commercial vendors and publishers should not be the beholders of educational information and knowledge – scientific or not.

Journal Impact Factor

Traditionally, most academic journals rely on Journal Impact Factor (JIF) to identify the impact of the written scholarship on a particular field. The JIF measures how often a particular journal is cited by other journals in the relevant fields. Initially, evaluating a journal's impact factor was a good way for libraries to determine which journals to purchase for their collections; however, the JIF is now a driven need for faculty with tenure and promotion (Nestor et al., 2020). The JIF is still an important measurement in regards to a journal's relevance in a particular field, but may not be the best way to assess the overall impact of a journal.

The Association of College & Research Libraries (ACRL) Scholarly Communication Toolkit: Measuring Impact guide suggests another form of assessing a journal's impact – altmetrics (ACRL, 2020). According to the ACRL Scholarly Communication Toolkit, "altmetrics measures how many times a journal article is downloaded, shared, commented on, and cited in social media outlets and can provide a meaningful indicator of the impact an article has among different user populations," (2020). The Toolkit also specifically addresses how authors can use open access publications to increase the impact of their scholarship and the advantages of publishing in an open access journal. The use of altmetrics is a very similar approach to how the 2020 assessment report was conducted for *The Journal of Learning Spaces*. This report looks at citation counts through Google Scholar, how many times articles are downloaded, what kind of learning spaces the articles are addressing, where

authors are contributing from (looking at how far of a reach *The Journal of Learning Spaces* has), and common keywords that are used in order to connect with readers.

Assessment

Purpose

The purpose of this assessment report is to study data regarding how *The Journal of Learning Spaces* is used, discovered, and contributed to. The data in this report will inform the journal how to move forward and improve through its upcoming publications.

The data pulled in 2020 will be compared to the initial assessment report conducted in 2017 to see progress of the journals. Trends and gaps will also be identified.

Citations

Retrieving citation data through Google Scholar was the main methodology for this assessment. Google Scholar informs the user how many times an article was cited by other people underneath the article's information.

In 2017, *The Journal of Learning Spaces* had a total of 96 citations. As of May 2020, the journal's citations skyrocketed to 847 total citations. The 2012 publications received the highest citation count at 289 citations with the 2017 publications following with 135 citations. The high citation counts for the 2012 issue are attributed to the fact that those articles have been available longer. The issues in 2013 and 2016 also have high citation counts at 117 and 116, respectively (fig. 1).

Within the top five cited articles from *The Journal of Learning Spaces*, three of the articles were published in 2012. The other two articles were published in 2013 and 2017.

- D. Christopher Brooks' 2012 article "Spaces and consequences: The impact of different formal learning spaces on instructor and student behavior," was cited 144 times.
- Heather Cunningham and Susanne Tabur's 2012 article "Learning space attributes: Reflections on academic library design and its use," was cited 65 times.
- Sam Van Horne, Cecilia Murniati, Jon D. H. Gaffney, and Maggie Jesse's 2012 article, "Promoting active learning in technology-infused TILE classrooms at the University of Iowa," was cited 50 times.
- Eugene J. Harvey and Melaine C. Kenyon's 2013 article, "Classroom seating considerations for 21st century students and faculty," was cited 48 times.
- Melissa L. Rands and Ann Gansemer-Topf's 2017 article, "'The room itself is active:' How classroom impacts student engagement," was cited 47 times.

Below is a table (table 1) outlining the total numerical counts for citation by publication date:

Table 1. Table reflecting numerical count of total citations per publication date	
Date of Publication	**Citation Totals**
2011	81
2012	289
2013	117
2014	19
2015	80
2016	116
2017	135
2018	7
2019	3

As these articles are mentioned in more research regarding learning spaces, their count will continue to rise as well as provide exposure for the journal. In just three years of assessment, the citation count for *The Journal of Learning Spaces* increased by 782%. The advantage of publishing within open access journals allows articles to have increased visibility and may, in result, lead to higher citations counts.

Space Analysis

The focus of *The Journal of Learning Spaces* is on, "learning space design, operation, pedagogy, and assessment in higher education" (Editorial policies, n.d.). Of course, these are the major themes discussed in the published articles; however, analysis on the types of spaces authors are writing about is important to know in regards to improving the scope of the journal.

Unsurprisingly, the category of "college classrooms" is the major point of discussion for the journal with 46 articles mentioning this type of learning space. There are sub-sections of "college classrooms" broken down on the graph in order to reflect the spaces correctly (all sub-sections are prefixed by "college classrooms; xxx"): virtual, technology-enhanced, residential living, library learning spaces, and active learning (fig. 2). The sub-sections are important to make note of because while they are still focusing on the "college classroom" learning space, the authors are specifically commenting on a certain aspect of the college classroom that should not be overlooked. The second largest category in the journal is the "library" with 19 articles referring to this learning space.

Beyond the college classroom, the journal published multiple articles on K-12 school learning spaces and some
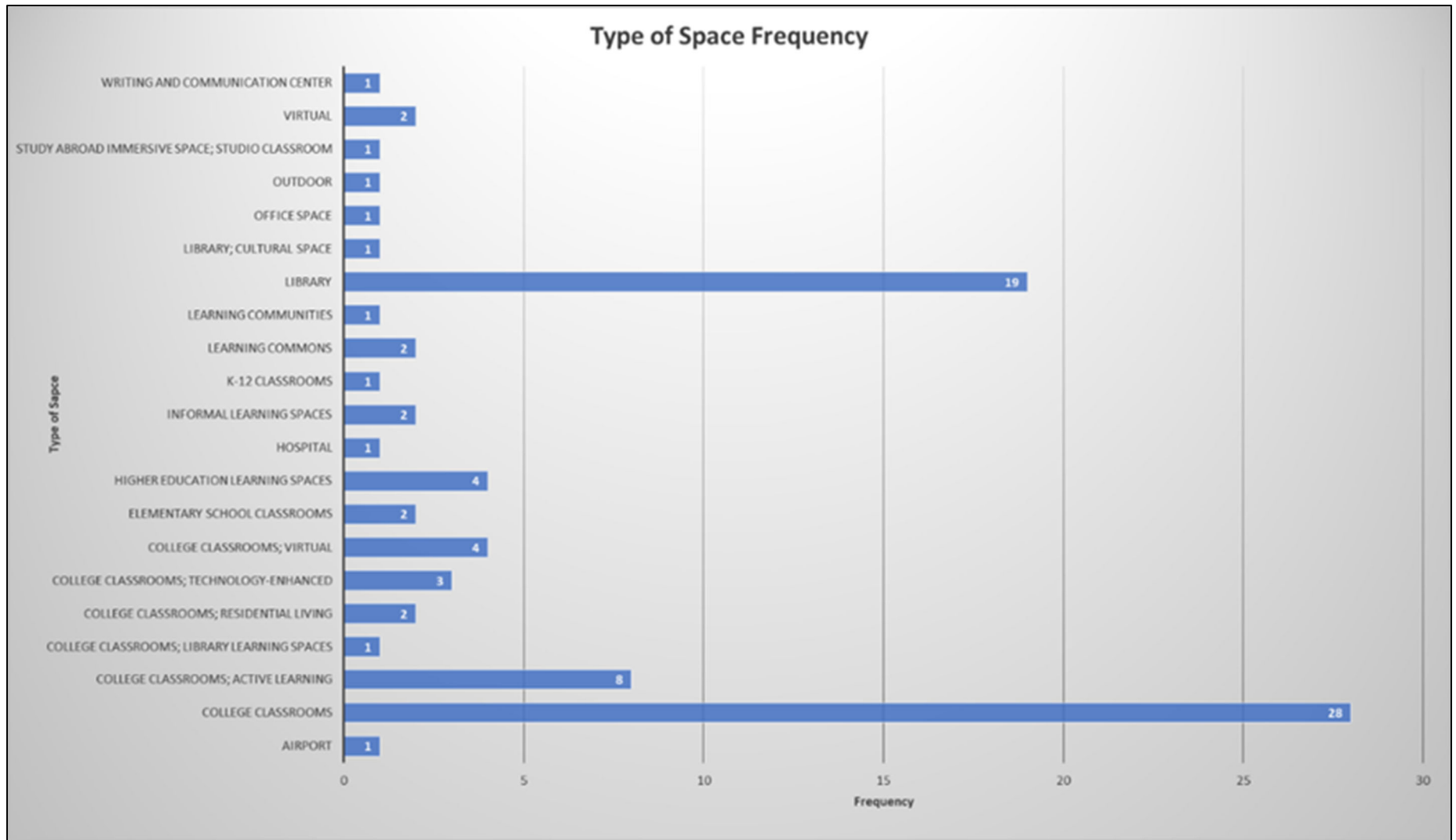
Figure 2. **Bar graph representing the types of learning spaces mentioned in the journal**

specifically on elementary school classrooms. Publishing articles within the scope but beyond the typical higher education consumer is a good way to expand *The Journal of Learning Space*'s reach and increase exposure. Some unique learning spaces mentioned in the journal thus far are the "airport," "outdoor," and "hospital" spaces.

As COVID-19 continues to alter regular learning experiences and spaces, there may be an increase of article submissions on how to incorporate plexiglass to classrooms, libraries, K-12 schools, informal learning spaces, and office spaces as well as how to effectively teach in a socially distant environment. Further assessment will need to be done on if COVID-19 impacts the usage of more creative learning spaces or environments, such as the "outdoor" space.

Keyword Frequency

Keywords are an important factor in finding articles through research. In the 2020 assessment, there are a total of 339 unique keywords used throughout 15 issues (see Appendix I for the lists of the keywords). Out of the 339 unique keywords, 36 of the keywords were used 5 or more times by authors. The top three words are "classroom design," "college students," and "school space" with each used a total of 24 times. Below is a word cloud (fig. 3)

depicting the top 36 keywords used in *The Journal of Learning Spaces*.

Methodology used for gathering keyword data involved searching on Google Scholar for the article and accessing the article through the ERIC database. ERIC provided a list of all keywords chosen for each article. Those keywords were gathered in an Excel spreadsheet and counts were totaled there. This methodology is different than the previous 2017 assessment; the 2017 assessment gathered keywords through article titles instead of the keywords listed for discoverability. In 2017, the top 3 words used in titles were "learn," "space," and "design."

Keywords are how articles are discovered by users – it is important to pay attention to the most used keywords and possibly recommend those to authors who are submitting articles to newer issues. Authors are entitled to pick their own keywords that best fit their article content, but it may be useful to provide a suggested list of keywords in the future for consistency and discoverability for all authors.

Contributing Authors

The Journal of Learning Spaces is a United States based journal sponsored by the University of North Carolina at Greensboro. Majority of the contributing authors work within or are from the United States; however, journals
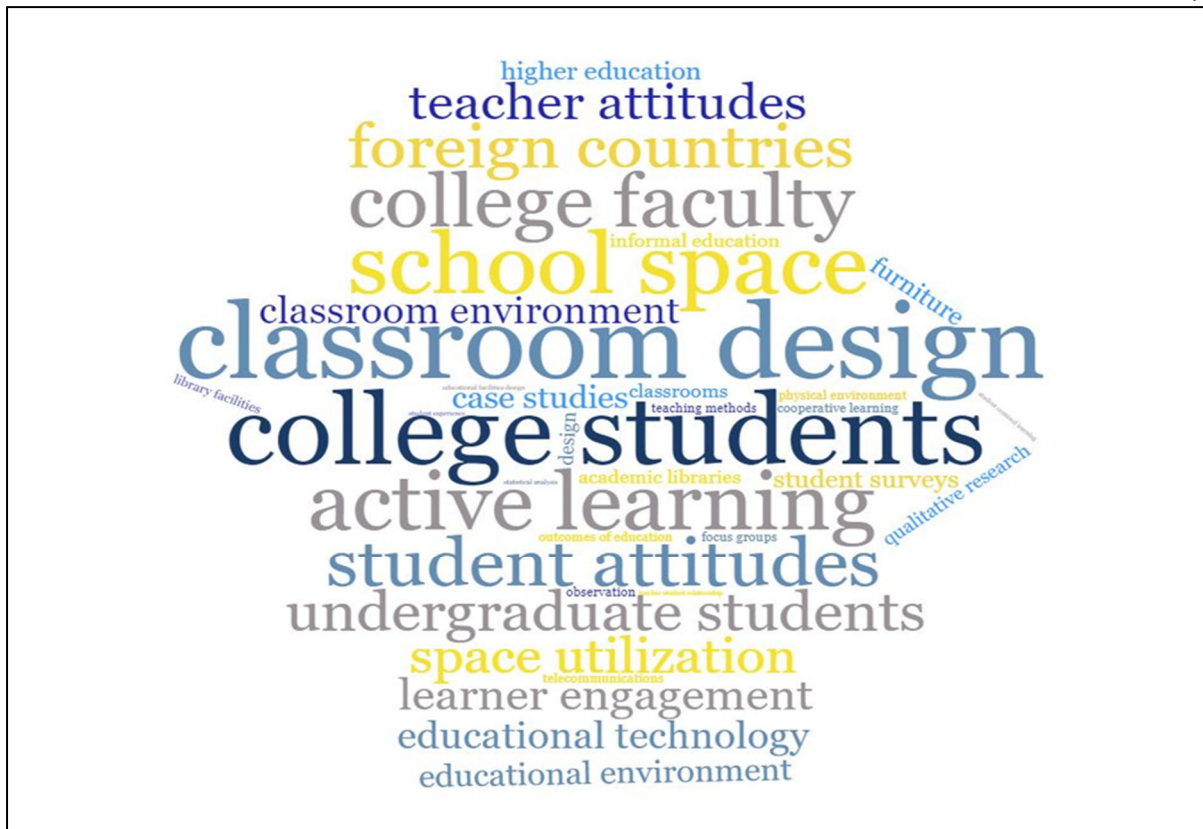

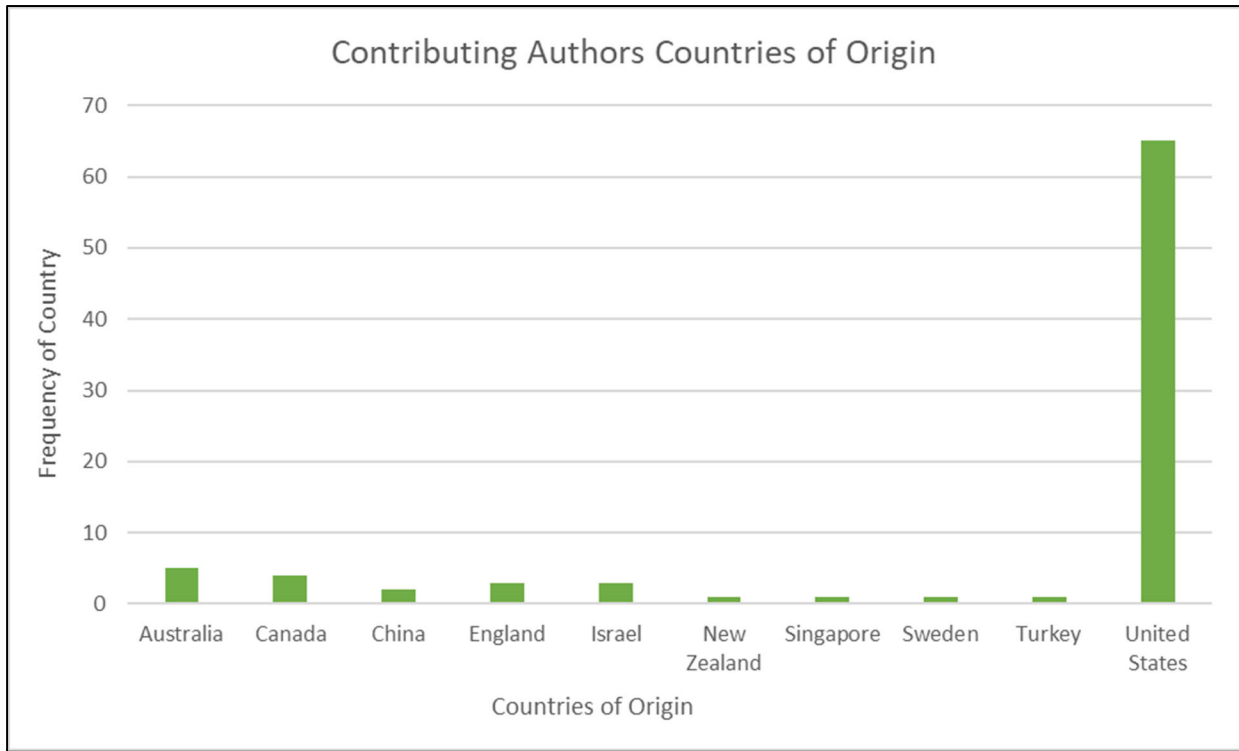*Figure 3.* **Word cloud featuring the top 36 keywords**

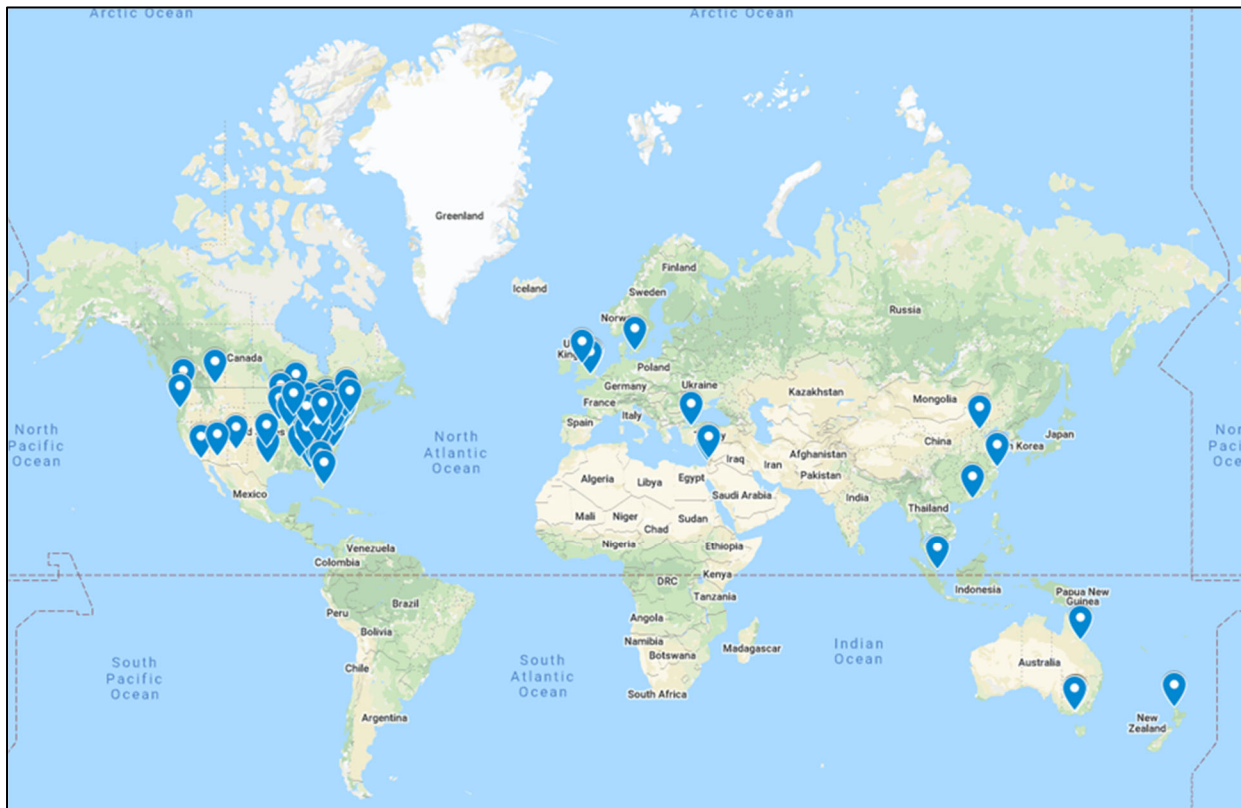*Figure 4.* **Column graph depicting contributing authors country of origin**

Figure 5. **Google Map of contributing authors; See reference list for link**

benefit from international research and perspectives. Beyond the United States, *The Journal of Learning Spaces* has contributing authors from nine other countries (fig. 4).

Author's country of origin is gathered through their associated institution that is listed beside their name on the article. Seventy six percent of *The Journal of Learning Spaces'* authors are from the United States. Australia is the second highest percentage at 6% and Canada is the third largest percentage of contributing authors at 5%. Receiving research from nine other countries since the foundation of the journal in 2011 is a great achievement.

For additional information of where in the globe the contributing authors submit from, a Google Map (fig. 5) was created to supplement the above graph (fig. 4). The Google Map shows a more comprehensive view of where the authors are contributing from – including their institutions. The map highlights how far across the globe the research is coming from. Not only is it important for journals to publish articles from beyond their country of origin, but the wide reach of contributing authors showcases the importance of supporting and uplifting open access research. Users are able to read and learn from global perspectives that are not hidden behind a paywall.

Conclusion

Open access journals are pivotal for the higher education community as well as society-at-large. With an informed community, society is able to make more educated decisions for individual and collective purposes. Supporting the movement to push for wider acceptance of open access materials will benefit more than the higher education community. Open access research is gaining more recognition with academic committees and authors attain more visibility through their open access research.

The Journal of Learning Spaces is contributing to the open access world with its content. A significant figure to remember is that citation count for the journal increased by 782% in three years. Researchers are paying attention to open access materials and using them to support their research.

The 2020 assessment of the journal will be a catalyst for improvements and changes; however, the assessment certainly highlights the progress and impact of open access research.

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Appendix I: Unique Keyword Tables

Word Cloud Keywords

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

Frequently Used Keywords Not Included in Word Cloud

Keyword	Count	Keyword	Count	Keyword	Count	Keyword	Count
architecture	4	visualization	4	educational innovation	3	teaching and learning	3
college instruction	4	affordances	3	faculty development	3	universities	3
cooperation	4	blended learning	3	group discussion	3	aesthetics	2
environmental influences	4	class activities	3	interaction	3	best practices	2
learning	4	collaboration	3	interior design	3	classroom communication	2
library	4	collaborative environment	3	interviews	3	cognitive style	2
semi structured interviews	4	colleges	3	libraries	3	college curriculum	2
state universities	4	comparative analysis	3	library services	3	college libraries	2
student needs	4	conventional instruction	3	student participation	3	computer mediated communication	2
decision making	2	learning laboratories	2	program implementation	2	social media	2
educational equipment	2	learning resource centers	2	psychometrics	2	Spanish	2
educational facilities improvement	2	learning strategies	2	quasiexperimental design	2	STEM education	2

educational practices	2	lecture method	2	rating scales	2	teacher behavior	2
electronic learning	2	liberal arts	2	reflection	2	teacher collaboration	2
elementary school teachers	2	library role	2	research universities	2	technology integration	2
experiential learning	2	living learning centers	2	school buildings	2	technology use in education	2
group activities	2	pedagogical content knowledge	2	school of education	2	test construction	2
interactions	2	peer relationship	2	second language instruction	2	transformative learning	2
interperonsal communication	2	predictor variables	2	social environment	2	visual aids	2