

*Bibliometrics and scientometrics in applied linguistics:
Epilogue to the special issue*

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Abstract

In this paper, I first discuss the field of bibliometrics, which is a quantitative approach to analyzing scholarly publications, and its subfield, scientometrics, which focuses exclusively on scientific literature. I argue that the use of bibliometric methods has been growing in applied linguistics in recent years, and explore the common features between bibliometrics and scientometrics. I will then review the papers published in the special issue on bibliometrics in applied linguistics, which features nine papers on various bibliometric topics. I conclude with suggestions for future research in the field, including the development of scales for measuring perceived prestige, investigation of indicators of influence and a predictive theory for impact of second language (L2) research, and further investigation into the imbalance in the representation of authors based in different parts of the world.

Keywords: applied linguistics; bibliometrics; scientometrics; second language learning

1. Introduction

Bibliometrics is the quantitative means of analyzing scholarly publications. The application of bibliometric methods has been growing steadily in applied linguistics in recent years. The methods are typically used to identify highly cited authors,

publications, and keywords (concepts) and so on (e.g., Sun & Lan, 2021). A specialized subfield of bibliometrics is *scientometrics*, which is a statistical approach to measuring the impact and connection between scientific publications, identifying clusters of thematically related publications, and finding out interdisciplinary links between different fields of science (Aryadoust et al., 2020; Liu & Hu, 2021; Zakaria & Aryadoust, 2023). Thus, while scientometrics exclusively deals with scientific literature and the relationship between scientific foundations such as universities and fund providers, bibliometrics is an overarching and broader field which does not have an exclusive focus on the scientific literature. According to Mejia et al. (2021, p. 2), “a statistical analysis of literary production of fictional works by writers not affiliated to academia, may be labeled as a bibliometric study but not as a scientometrics one.”

The common feature between bibliometrics and scientometrics is the use of “big data.” To identify landmark studies, homogenous clusters of scientific publications, and cross-disciplinary influences, it is necessary to employ extensive datasets that reliably represent scientific fields (Chen, 2017). One example is bibliographic coupling which is used in both bibliometrics and scientometrics to uncover author links in the published literature (Zhao & Strotmann, 2008). In addition, co-citation analysis techniques (Small, 1973) such as document co-citation analysis (DCA), author co-citation analysis (ACA), and journal co-citation analysis (JCA) have been applied to track pairs of documents, authors, or journals that are co-cited in source articles. Finally, bibliometrics and scientometrics have afforded applied linguists the possibility of identifying research hubs, collaborations between authors, influential authors and their countries of origin. This metaknowledge can enable researchers to, inter alia, develop a bird’s-eye view of the scholarly research in the field and gain insights into knowledge mobility and collaborations between researchers, journals, and countries.

2. The special issue

The special issue of *Studies in second language Learning and Teaching*, guest-edited by Luke Plonsky is a timely and important contribution to bibliometrics in applied linguistics, and offers novel insights into the scholarship and authorship in the field. It features nine papers (including the current epilogue), which examine a variety of bibliometric topics in applied linguistics spanning from perceived prestige of publications and collaboration to (change of) trends in publications. In the first paper, Luke Plonsky provides an introduction to bibliometrics and to some of the topics and techniques found in the special issue.

In the second paper, Mohammad Amini Farsani and Hamid R. Jamali examined co-citation links in applied linguistics (the authors referred to it as “scientific

collaborations”), using a dataset consisting of 3,992 articles. Amini Farsani and Jamali first categorized the dataset into non-empirical, quantitative, qualitative, mixed methods, and systematic reviews. They found that slightly more than half of the papers published in the 18 applied linguistics journals included in their dataset were collaborative. They also reported a “moderate-to-high” degree of linkage among the journals in applied linguistics. Next, they used the VOSviewer software (Van Eck & Waltman, 2010) for bibliometric analysis to mine and visualize the scientific landscape of research in applied linguistics from various perspectives. The authors found that, overall, English-speaking countries had the strongest co-citation links in the quantitative research category, although non-English speaking countries in Asia and Europe were also well-represented in the network. For example, the US’s total link strength was 172, followed by the UK (111) and Japan (49). Similar link patterns emerged in the mixed-methods research and qualitative research categories, whereas in the systematic review category, Asian countries were slightly more represented compared with the preceding research categories. In this study, country collaboration statistics were derived by dividing the number of co-authored papers by the total number of papers.

In the third paper, Yiran Xu, Jingyuan Zhuang, Ryan Blair, Amy Kim, Fei Li, Rachel Thorson Hernández, and Luke Plonsky adopted a multifarious approach to investigating the concept of quality and prestige in applied linguistics journals. Three datasets that were produced by the authors in 2017 were used in the study: a survey to evaluate second language (L2) researchers’ perception of quality of L2 journals; manual coding of article type, data type, research settings, and patterns of authorships; and meta-data such as acceptance rate and impact factor of journals. The authors found that the rating of subjective prestige of journals was higher for general-purpose journals compared with journals that had a more specialized research focus. In addition, prestige was significantly associated the respondents’ familiarity with the journals as well as the methodological rigor, impact factor, and the quality and timeline of the review process. Interestingly, in a follow-up regression analysis, the authors found that out of seven subjective and objective factors, only Google h-5 index predicted the subjective prestige of the journals ($\beta = 0.38$), and although factors like “small % of solo-authored papers,” “a high impact factor,” and “a large % North American Institutions” improved the prediction power of the model (as indicated by the R^2 index), they were not significant predictors of subjective prestige. Another important finding of the study was the dominant presence of North American scholars among members of editorial boards and authors and the underrepresentation of scholars from other regions notably South America, Asia, and Africa. As to whether this restricted diversity indicates bias or the tendency of North American authors to submit their papers to journals with North American editorial boards, etc. would be a very interesting and important area for further investigation.

The fourth study by Lei Lei, Yaochen Deng, and Dilin Liu is a multifaceted investigation of keywords and co-citation patterns in the literature on learning and teaching L2 listening. Using a Python code developed for the project, Lei et al. sought to extract major keywords of the abstract and title of 593 papers published in 27 journals between 1948 and 2020, and clustered them into five groups representing context and technology, vocabulary and intelligibility, and so on. Using the VOSviewer software, the authors then conducted several co-citation analyses to identify clusters and influential authors, publications, and countries. The ACA revealed that the authors who had published their work in the early 2000s or before clustered together and also were mostly found among the most influential researchers of L2. In a follow-up DCA, Lei et al found 20 influential publications with an average publication year of 2002. Finally, in a JCA, the authors identified a number of highly cited journals which were clustered into five groups, with various intra- and inter-cluster links.

The fifth study by Mehdi Riazi, Hessameddin Ghanbar, Fahimeh Mareft, and Ismaeil Fazel was set up to investigate the context, research focus, and methodology of 696 empirical papers published in *TESOL Quarterly* (1967-2019). Consistent with Xu et al. (this issue), Riazi et al. found that the most representing publication pattern was the dominant presence of papers written by the US scholars, while unlike Xu et al., they revealed that the dominant papers were chiefly single-authored and that the single-authored papers showed an overall increasing trend from 1967 to 2019 despite two dips between 1980 and 1989. In addition, the top three countries of proliferating authors were the US, Canada, and Japan with the US scholars contributing more than 50% of the publications, creating a significant gap with Canada (6.8%) and Japan (4.5%). The authors further reported that universities, K-12 education, and colleges were overrepresented in the journal, with undergraduates and lecturers-teachers being the most highly researched populations. Finally, instruction, learning, and assessment were the top three areas of investigation in the journal and both qualitative and quantitative methods had by far the largest proportion of the papers published in this journal. The authors rightly suggested that, inter alia, *TESOL Quarterly's* "editorial policy may thus create more space for studies from diverse regions and a variety of participants" (p. 836). Based on their finding that the majority of publication in *TESOL Quarterly* "lacked a discernible or explicit theoretical or conceptual framework." Accordingly, they proposed that the significance of theory should be highlighted in future research on L2 learning.

In the sixth study, Meng-Lin Chen researched the interdisciplinarity of second language acquisition (SLA) studies published between 2000 and 2020. The author created outbound and inbound bibliometric datasets from the Web of Science and used Bibliometrix (Aria & Cuccurullo, 2017), a free R-based app, to

find possible connections between the two datasets. These datasets allowed the researcher to document two crosspollination patterns in SLA research, one that has entered non-SLA fields from SLA, and one that has entered into SLA research from other fields specifically arts and humanities and social sciences to a lower extent technology and life sciences. Nevertheless, the results showed that the mobility of knowledge from SLA to other fields was minimal, that is, SLA has mostly been a receiver of knowledge from other disciplines than a provider. Chen discussed possible reasons for this finding and suggested that SLA has now turned “into a multidisciplinary and interdisciplinary discipline in its own right” (p. 876).

The seventh study of the special issue by Paul Meara is marked by the use of an informal writing style and several decisions that the author made based on intuition. The paper reports a “micro-bibliometrics” study of a book entitled *The Routledge Handbook of Vocabulary Studies* (Webb, 2020) to show that this book “is not as representative of L2 vocabulary research as its title might lead us to believe” (p. 883). The book consists of 34 chapters (excluding the introduction) each of which, according to Meara, cites “about 45 unique sources” which totals to “1537 unique sources,” with most highly cited references being from Canada, Australia, New Zealand, and the UK. Retaining only “about 100 sources who are frequently cited in the dataset,” the author then used the Gephi software (Bastian et al., 2009) to perform an ACA. Five clusters of co-cited authors emerge in this analysis. Meara argued that the co-citation patterns emerging in the clusters can be explained by the former student-professor links among many of the authors. The author successively compared the ACA network with another network he generated by using an equivalent sample of 34 publications which he derived in the following way: “After some thought, I decided that the best approach would be to take a set of thirty-four research papers from a single journal” (p. 892) (for further details on how the author settled on *Frontiers of Psychology* as the main source of the papers, please refer to the paper). A second network consisting of five clusters also consisted of five clusters – note that the parameters for generating this and *The Handbook* networks were somewhat different, as the author briefly mentioned. Finally, based on the differences of the two networks – which in my view is not unexpected – the author drew several conclusions, indicating, for example, “[l]ong-range, between-cluster co-citations . . . might reflect an unwillingness to engage with problems outside the dominant paradigm” (p. 896) and that there is limited overlap between the two maps.

Finally, Ken Hyland and Kevin Jiang adopted a series of (citation) analyses to investigate the most frequently explored topics in L2 writing, the most cited authors and publications, as well as the most productive countries/regions and journals between 2005 and 2020. The authors then compared the results of their study with an earlier study on similar questions, which investigated these

patterns in applied linguistics in an earlier period. They used several techniques such as automated annotation and tagging and frequency calculation to meet the goals of the study. Hyland and Jiang reported “179 new topics” some of which such as “*identity, genre, discipline, metadiscourse and stance*” (p. 921) had a significant increase in their coverage in the literature by “over 130%.” Likewise, changes and similarities were observed in the other facets of analysis. On note, the US and the UK remained to be the most productive hubs of publication and the overwhelming majority of the top 15 countries in both periods remained to be European and North American, although there was a significant change in the position of China, which moved to the third rank in the second period.

3. Closing remarks and future research

This special issue of *SLLT* on the application of bibliometrics in applied linguistics, guest-edited by Luke Plonsky, features nine papers that focus on various topics in applied linguistics and L2. The papers applied an array of different analytical methods, used different software packages, and generated quantitative insights into the emergence and development of L2 research, applied linguistics, or their subfields. In my view, the issue achieves its objectives by effectively addressing multiple bibliometric questions and identifying gaps in knowledge. Collectively, this set of papers makes a significant contribution to bibliometrics in applied linguistics.

I would like to emphasize several areas for future research. First, as noted by Xu et al. (this issue), participants in their study may have had their own subjective criteria for evaluating the prestige or quality of the sampled journals. This suggests a need for further research on developing and validating scales for measuring perceived prestige of applied linguistics and L2 publications.

Second, Lei et al.’s study highlights that it typically takes several years for a publication to achieve “burst” status (i.e., high citation counts). Multiple factors, such as the quality of the methodology employed (as noted by Gass et al., 2021), publication timeline, topic length, author number, and author location, contribute to burstness. I recommend that future research should focus on identifying indicators of influence and developing a predictive theory of the impact of L2 research. This special issue reveals a significant disparity in the representation of authors based in the US compared to those from other regions. Several studies in this issue, including the one by Xu et al., offer potential explanations for this trend. Investigating this phenomenon from a socioeconomic status and political dominance standpoint, as well as analyzing whether authors who use English as an additional/second language receive fair opportunities for publication, is critical.

Another area that warrants further investigation is the accessibility and mobility of knowledge and scientific equipment in different parts of the world. While L2 research typically does not heavily rely on sophisticated (hardware) technologies, there is a growing body of research that utilizes advanced technologies such as neuroimaging, virtual reality, and eye tracking to address questions that cannot be addressed through traditional methods. Scholars from more economically advanced regions and countries are more likely to have access to and utilize these technologies, leading to overrepresentation of these regions among highly cited scholars and publications. Our ongoing study provides substantial evidence to support this hypothesis. However, the impact of social factors on science is not well-explored in applied linguistics, as highlighted in studies by Bhattacharya et al. (2020), and Gao and Wright (2020).

In sum, I am confident that both the readership of the journal and the wider field of applied linguistics will find the papers in this special issue to be both enjoyable and informative. I want to extend my congratulations to the authors and the editor of this special issue for their notable contribution to the advancement of the field.

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