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The Journal of the National Collegiate Honors Council: A Bibliometric Study

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Abstract: This paper analyzes summative content and citation patterns in the *Journal of the National Collegiate Honors Council* (ISSN 1559-0151), a peer-reviewed, scholarly publication related to honors education, during its first 20 volumes of existence from 2000 to 2019. The bibliometric study consists of two parts: an analysis of articles and an analysis of citations. Quantitative and qualitative measures are used to examine article types, authorship patterns, cited references, and coverage of core subjects. Results indicate 522 articles with an annual output average of 26.1. Annual input averages 37.4 authors, featuring 492 unique authors who represent 248 unique institutions and agencies. Collectively, data show an increased emphasis on evidenced-based practice, program assessment, and theoretical research, signifying steady decadal development in this area. Predictive factors associated with the growth and general health of scholarly publication also demonstrate marked improvements: an editorial board that has nearly doubled in size, sustained interdisciplinarity (54 fields of study), high degree of collaboration (31%), significant (72%) jump in pagination, and low rate of self-citation (10%). This research involves statistical analyses of written publication and thus aims, in part, to identify and examine trends in honors-related discourse on higher education. Merits, weaknesses, and a complete statistical profile of the journal are provided.

Keywords: informetrics; scholarly periodicals; citation analysis; interdisciplinarity; learned institutions and societies

INTRODUCTION

American education at all levels was a subject of great public interest during the 1990s, a decade hungover from *A Nation at Risk*, the paradigmatic educational statement of the Reagan-era, with its alarming predictions of national catastrophe resulting from a "rising tide of mediocrity."

As the national discussion on higher education shifted and as new policies to reflect new priorities formed, honors programs across the country maintained models of collaborative success, with committed faculty, engaged students, and climates of healthy discourse, its professoriate insisting that their students be intellectually aroused by skillful teaching and well-designed courses and that their campuses be the intellectual and civil communities in which teachers, students, and administrators enjoy a commonality of purpose.

Honors-related literatures reflected these priorities. Throughout the decade, tireless advocacy by honors educators reminded fellow teachers and the general public that the "nation at risk" could not afford to ignore increasing inequities in higher education and persistent conflicts over the canon. Scholars focused attention on whether the present curriculum prepared students for the twenty-first century. Important if not obvious tensions about the ends of higher education and its contribution to civil society played out in a number of reforms and misapplications of the scientific method. The crisis that American colleges faced in the last year of the century was not, as the news media would have it, about culture wars but about the almost impossible choices that would have to be made if universities were to lead, not merely imitate, a rapidly changing society.

Against this backdrop, volume one, issue one of *JNCHC* was born, printed at the University of Alabama, Birmingham, where editors and honors faculty Ada Long, Dail Mullins, and Rusty Rushton resided. The inaugural issue was, fittingly, a festschrift in honor of a most distinguished leader in the field of honors education, Catherine Cater, who for fifty-five years (1945–2000) "kept alive the tradition of liberal studies" and indefatigably labored to make that tradition accessible to all (Homan, 2000).

The *Journal* has since upheld certain relational and emancipatory elements of higher education, both in depth and production. While its editorial office remained in Birmingham, printing and distribution of its early volumes were irregular and free-footed. Volume two (2001) was printed and distributed at Radford University in Virginia, where then Executive Secretary and Treasurer Earl Brown, Jr., resided. From there it enjoyed a vagabond existence, jumping in

2003 to the printing offices of Iowa State and then to the University of Nebraska-Lincoln in 2005, where it took up permanent residence at NCHC's newly established national office. While issues were immediately released to members, free open access to non-members began in 2005 with concurrent full-text indexing in library databases.

For twenty years, the *Journal of the National Collegiate Honors Council* has held true to its original editorial statement with its member-authors enthusiastically answering calls for analyses of trends in teaching methodology, descriptions of interdisciplinary efforts, discussions of problems and emergent issues relevant to honors education, and elaborations on items of the national higher education agenda. Today, the *Journal* offers unparalleled collaborative content and enjoys global readership, extending leaps and bounds beyond its membership to reach innovators and educators, practitioners and scholars, administrators and students, in honors and beyond. "We are models of discourse," honors advocates avowed back in the dawn of a new millennium: "We need to set up situations where true conversation can happen rather than just rhetorical posturing" (Malan et al., 2000, p. 21). This paper is a vicennial peek at those conversations through a bibliometric lens, analyzing the *Journal*'s summative content and citation patterns during its first 40 issues, from 2000 to 2019.

WHY BIBLIOMETRICS? WHY NOW?

Founded in 1966, the National Collegiate Honors Council is an international collective of scholars, educators, administrators, and students from varying academic disciplines and interests. As such, the ideas and practices articulated in its literatures reflect a wide range of expertise and perspective. Only recently has this diversity posed a problem. The establishment of digital imprints; integration into scholarly indexes and institutional repositories; systematic review of gray literature; and launching of an online undergraduate journal—with these developments, efforts are being renewed toward establishing a cohesive, consistent framework for future academic inquiry and scholarly research. A retrospective analysis of the organization's published literature is a logical first step toward this end.

Bibliometrics is the use of mathematical and statistical methods to analyze the historical development of a specific body of literature, particularly its authorship, publication, and use (Reitz, 2014). Prior to the mid-twentieth century, this quantitative study of bibliographic data and usage was known as "statistical bibliography." In recent years, such computable approaches to research evaluation have attracted increasing interest and controversy. Researchers are interested in

evaluating their own performance while institutions of higher learning are apt to use such calculations for management purposes (Cox et al., 2019).

Uncritical reliance on certain metrics, such as the Journal Impact Factor and h-index, has evoked disapproval (Barnes, 2014; Callaway, 2016; Larivière et al., 2016), leading academic libraries to develop bibliometric offerings and services to augment traditional measures in research and scholarly communication (Corrall et al., 2013; Barnes, 2017). Acknowledging the necessity of understanding factors related to differing disciplinary cultures and publishing practices, librarians use bibliometric instruments to help contextualize research and readership across an ever-changing information landscape.

In the last five years or so, providing contextualized evidence in research has proved a formidable task. Predatory publishers (Teixeira da Silva et al., 2019; Hauptman, 2019; Xia, 2019), bogus conferences (Beall, 2015; Lang et al., 2019; Gillett, 2018), and extreme self-citing (Giri, 2019; Hu et al., 2017; Lin & Huang, 2012; Vîiu, 2016; VanNoorden & Chawla, 2019) are on the rise. Standard publishing directories have added "blacklist" titles as information scientists exploit new technologies to put misinformation under a microscope. From rescaling citation averages (Antonoyiannakis, 2018) to policing "citation cartels" (Krell, 2014), librarians and information professionals are taking deep dives into bibliography to bring to the surface hidden attributes of scholarly publication and, in so doing, help mitigate the potentially harmful effects that quantifiable, objective, and even universal evaluations of research quality can have on both researchers and research (Coulthard & Keller, 2016; de Rijcke et al., 2016).

Bibliometric studies allow for a balanced understanding of research and scholarship by providing data specific to a publication's sponsoring agency, disciplinary bent, audience, and attributions. In an age of information pollution, where we must contend with the damages of amplification and influence, these studies are more important than ever. Gumpenberger et al. (2012) go so far as to label bibliometric work as "a perfect fit for academic libraries" (p. 174). However, such efforts (and the quantitative indicators they reveal) can also prove useful to editors and editorial boards responsible for the shape of research output and trajectories toward sustainability; it is in this spirit that the present study was undertaken.

OBJECTIVES

Once a discipline has reached a certain degree of maturity, it is common practice for scholars to turn their attention toward the scholarly communication generated by that specific community and, treating it as a research topic in its

own right, to conduct reviews of the literature with a goal of assessing the general state of the art (Ramos-Rodríguiz & Ruíz-Navarro, 2004).

The purpose of this study is to provide a statistical snapshot of the *Journal* through its most salient bibliographic elements. The study consists of an analysis of articles including, but not limited to, article type, length, and distribution; authorship patterns; and bibliographic relationships. Citation analysis examines the frequency, patterns, and shared qualities of citations in each article and across multiple issues over time; it uses simple citation counting, clustering, and ranking techniques not to suggest impact or assumed quality but to ascertain, in this case, how honors has evolved by focusing on and describing what appears in the rearview mirror.

Understanding the type, age, and similarity of cited references has practical implications for both editorial (*Journal*) and organizational (Council) planning. As one bibliometric indicator of importance and provenance (what is read, referenced, and re-appropriated), citation analysis helps to evaluate research progress while identifying key documents and discourses worthy of preservation and access.

Finally, honors education is a scholarly discourse of a transdisciplinary nature (Schuman, 2004); as such, it has long been acknowledged for its ability to generate methodologies that reach beyond narrow disciplinary prescripts. Bibliometrics provides a flexible methodology for discovering the nature of honors education; examining the relationship between honors and undergraduate curricula; and establishing honors as its own discipline.

METHOD

In January 2019, full volumes from 2000 v. 1(1) were downloaded from the *National Collegiate Honors Council Collections* at the University of Nebraska-Lincoln's institutional repository <https://digitalcommons.unl.edu/natlcollhonors>. Volume runs in .pdf were collated through 2018. Future issues (2019, Volumes 1 & 2), as well as the annual JNCHC Consolidated Bibliography, were obtained directly from the publisher later in the year.

Eligibility Criteria

All articles featured in the *Journal* from the years 2000–2019 were screened for inclusion, and all articles were accepted in the study. Because each volume contains articles specific to editorial, forum, and research orientations, the content of single issues was deconstructed and collated accordingly:

- **Front matter**. Executive Committee, Executive Director, and Board of Directors; indexing statements; production notes; Editorial Board; frontispiece and illustrative matter, and contents. [Calls for papers and editorial policy, deadlines, and submission guidelines were excluded.]
- **Editorial.** Issue dedications and editor's introductions (issue and sections, where applicable).
- **Body copy**. Forum and research essays. [Book reviews (2005), letters to the editors (2006), and reprints (2012) were excluded.]
- **Back matter**. *About the Authors*. [NCHC publications descriptions and order forms were excluded.]

In terms of the body copy, while essays involving research and assessment were published in early volumes, it wasn't until Volume 5 Issue 1 (2004) that contributions in research were named as such in the Table of Contents: "Forum on Research in Honors" and "Research in Honors." The term "assessment" first appeared in a section heading in 2006 (Volume 7 Issue 1).

Coding Strategy

Articles were taken as a unit of analysis, and each was classified and codified by type and subject area using a coding scheme of categories for classification derivative of the *Journal*'s official description and several levels of ancillary domains (e.g., *Portz* prizes, expository). Article coding schemes were also developed for regional distribution of contribution; Board affiliation; degree of collaboration; cross-institutional cooperatives; author gender, author discipline, author rank, and modifiers; illustrative matter (tables, charts, graphs); and appendices.

Reference lists were taken as a separate unit of analysis, and each bibliographic entry was classified and codified by type, age, and level of self-citation (Council, *Journal*, and author).

Presentation of Data

Data entry, calculation, and analysis were achieved in Microsoft Excel. Specific data sets were extracted in tabular form and remodeled in the web-based data visualization application *Piktochart* <https://piktochart.com>.

RESULTS & DISCUSSION

JNCHC demonstrated a dramatically increased scholarliness in comparison to the previous NCHC refereed journal (*Forum for Honors*, 1969–95), at least insofar as quantitative indicators reveal. Before 2000, fewer than one-third of all articles contained cited references. Since the inaugural issue of *JNCHC*, this proportion has grown steadily, and in 2019, 23 out of 25 articles were referenced. The number of citations per referenced article has also increased steadily, from 9 in 2009 to 15 in 2019. Predictive factors associated with the growth and general health of scholarly publication also demonstrate marked improvements: an editorial board that has nearly doubled in size, sustained interdisciplinarity (54 fields of study), a high degree of collaboration (31%), a significant (72%) jump in pagination, and a low rate of self-citation (10%).

Analysis of Articles

Annual Distribution of Contribution

Since 2000, the *Journal* has produced a total of 522 articles, and annual output averages 26.1 articles. A total of 747 contributors (255 repeats) have been engaged, and annual input averages 37.4 authors. Overall, the first twenty volumes (2000–19) exhibit growth in annual contribution: 39% in articles (as high as 50 articles in a single year) and 36% in authorship (as high as 95 authors in a single year). Decadal growth in contribution shows substantial increases (50% in articles and 32% in authorship) in the front half (2000–09) of its publication history, and it shows solid contributions (19% and 23%, respectively) in the back half (2010–19).

Regional Distribution of Contribution

In addition to the national *Council*, regional honors councils exist to provide collaboration and student opportunities at the local level (National Collegiate Honors Council, 2009). While not managed by NCHC, these regionals facilitate dialogue, events, and honors advocacy throughout their districts; often providing, through research and scholarship, insights and enterprises unique to their areas on the map (Figures 1 & 2).

The Southern Regional Honors Council (states of Virginia, Alabama, Southern Kentucky, Georgia, Tennessee, Florida, Mississippi, South Carolina, Louisiana, North Carolina, and Arkansas) has produced the highest

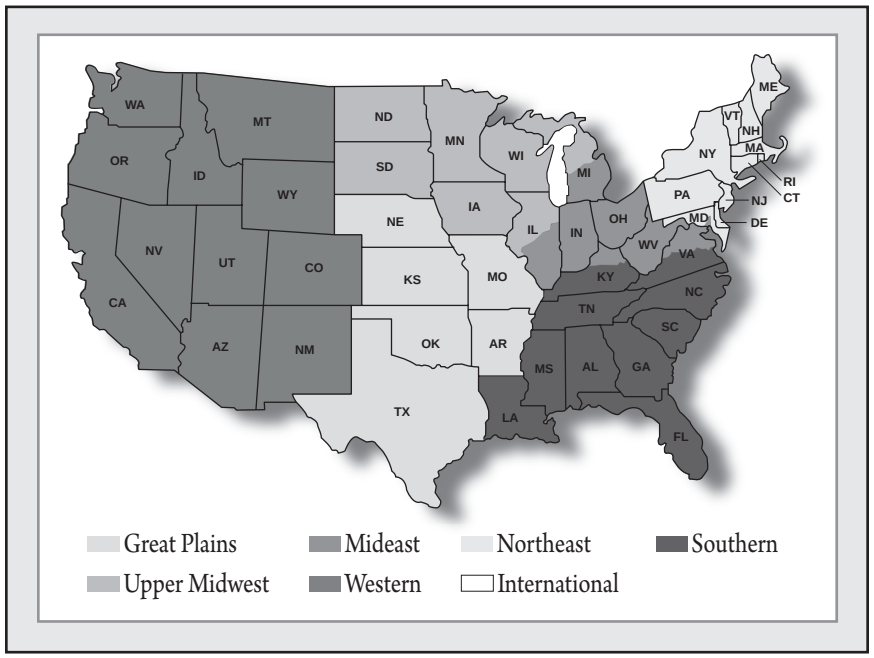
number (*n* = *240*) and percentage (32.13) of total contribution, with the regional Northeast accounting for 21.42% of total contribution. Contribution from outside the United States (*n* = *14*, 1.87%) exceeds that of the Upper Midwest region and nearly meets contributions from the Great Plains and Mideast states.

Article Type (Coverage of Core Subjects)

JNCHC's editorial policy seeks to define for its readers and prospective authors the content and scope of publication: "Articles may include analyses of trends in teaching methodology, discussions of problems common to honors programs and colleges, items on the national higher education agenda, research on assessment, and presentations of emergent issues relevant to honors education" (Long, 2019).

Recognizing that total contribution encompasses several facets of editorial solicitation and selection (e.g., issue dedications, general exposition, student work), each article was read and codified according to the *Journal*'s official editorial statement and several levels of ancillary domains. Table 1 shows contribution type in number, pages, and authors. Note that the number of contributions (*n* = *605*) is slightly higher than article total (*n* = *522*) on

Figure 1. Regional Honors Councils, 2009

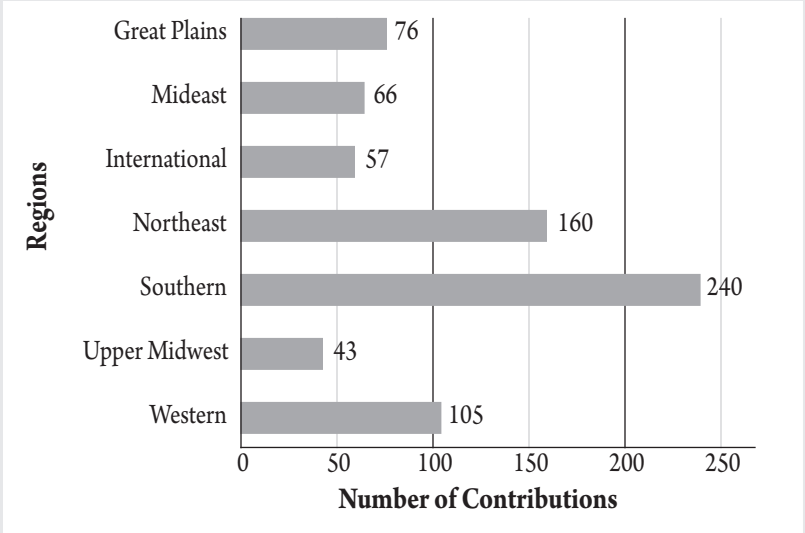


account of levels of ancillary domain, including editorial. On the whole, data suggest that the *Journal* gets what it asks for in its Calls for Papers. Content is suitably rounded and representative of the *Journal*'s editorial statement and meets expectations for the scope and quality of its output.

Editorial matter—such as issue notes, dedications, and editor's introductions—takes up a modest percentage (5.7%) of total pages. Research and assessment, while engaging over two hundred authors, represent a little over a quarter (27.2%) of all contribution types and a little under half (44%) of total pages. These percentages are appropriate (in terms of mission data quality, coverage, and alignment) and critical, as complete independence between research indicators and peer review is very difficult to maintain in contemporary scholarly publishing (Larivière & Costas, 2016).

The practice of publishing as many research papers as possible—often referred to as "salami slicing"—has long been discussed in the literature (Sugimoto & Larivière, 2018; Wager, Singhvi, & Kleinert, 2015; Abraham, 2000). Most certainly, this practice did not occur at the time of the *Journal*'s inception, before the internet became so dominant in academic life and before the misuse of Journal Impact Factors (JIFs) began (Katritsis, 2019); nevertheless, the temperate proportion of research articles to all other contributions speaks, at least in part, to the integrity of peer review and to the *Journal*'s remaining true, with limited adjustments, to its editorial strategy over time.

Figure 2. Contributions by Region, 2000–2019



In the category of ALL (*n = 10*) in Figure 3 as well as Table 1, articles that touch on all five of the primary-level domains in the *Journal*'s description (teaching methodology, discussions of problems, items on the national higher education agenda, research on assessment, and emergent issues) are noted. After Research and Assessment, Discussion of Problems is most prevalent (*n = 107*), followed by Emergent Issues (*n = 94*). The *Journal* devoted 5.4% of its pages to showcasing exemplary student work from member institutions, and it accepted just over 8% (*n = 42*) of material (Expository/Other) outside its general prescripts for content. Articles relating to the national higher education agenda, while relatively low in number (*n = 26*), enjoy a higher page count (*n = 172*) than Expository (Other) (*n = 143*), which engages double the contributors. Figure 3 shows the distribution of core subjects, as articulated in the *Journal*'s editorial statement, achieved in the first twenty volumes. Figure 4 features examples of contribution by type.

Physical Details and Attributes

In sum, the *Journal* has printed 4660 pages of actual content: "actual," meaning printed pages correspondent to each issue's table. Blank pages, front matter (including executive statements, editorial policy, calls for papers, submission guidelines, and tables of contents), and back matter (including *About the Authors* and publication ordering forms) are not considered in this study although collectively they make up 1447 pages (23.7% of all) across the

Table 1. Article Types

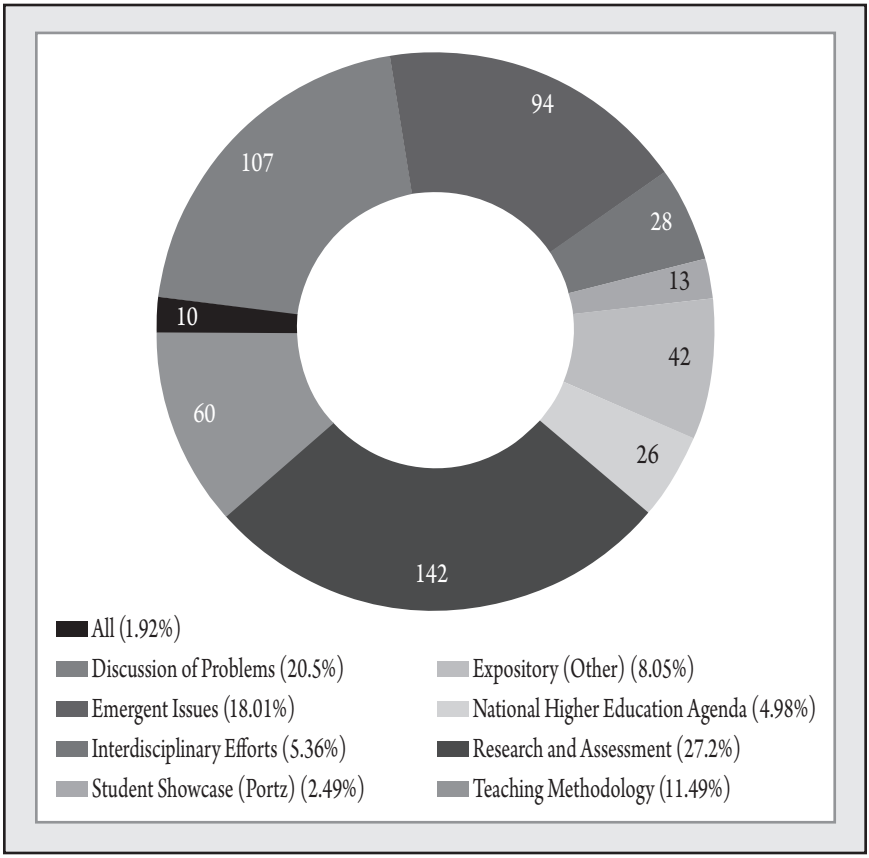
Type	Number	Pages	Authors
All	10	77	16
Discussion of Problems	107	570	120
Editor's Introduction / Notes	40	206	1
Emergent Issues	94	493	100
Interdisciplinary Efforts	28	169	31
Issue Dedication	40	61	1
Expository (Other)	42	143	44
National Higher Education Agenda	26	172	37
Research and Assessment	142	2046	226
Section Introduction	3	3	3
Student Showcase (Portz)	13	250	16
Teaching Methodology	60	470	76

twenty-volume run. Figure 5 shows all pages by issue. With the exception of a single rather dense issue (13(2): *Honors Around the Globe*) in 2012, annual first issues (Spring/Summer) tend to be slightly higher in pages than their perennial kin (Fall/Winter). To supplement its texts, the *Journal* features, in total, 477 tables, charts, and graphs; 62 illustrations; and 39 abstracts, 87 keywords, and 65 appendices. "Five" is a magic number when it comes to certain bibliographic affinities: five are reprints, five relate to the national conference, and five acknowledge some form of funding.

Authorship Patterns and Productivity

A total of 747 contributors (255 repeats) have been engaged, and annual input averages 37.4 authors. The *Journal* features a total of 492 unique authors from 248 different institutions and agencies. Figure 6 shows unique authoring

Figure 3. Coverage of Core Subjects (n = 522)



institutions by volume; Appendix A provides an alphabetic list. While the first (2000–04) volume run features the highest number of unique authoring institutions, it is important to acknowledge the steady growth of new authoring institutions throughout the early life of the *Journal*. The decade of mid-production (2005–15), for example, saw 103 authoring institutions

Figure 4. Examples of Contribution Type

All
Andrews, L. (2011). The wisdom of our elders: Honors discussions in The Superior Student, 1958–65.

Discussion of Problems
Knox, J. A. (2017). The strange game of prestige scholarships.

Emergent Issues
Johnson, M. L. (2013). Meeting the aims of honors in the online environment.

Expository (Other)
Dudley, C. (J.) (2007). [Honoring Virginia Tech:] Letter from Charles (Jack) Dudley.

Interdisciplinary Efforts
Oswald, K. J., & Smith, E. (2011). A role for honors in conservation and biodiversity education.

National Higher Education Agenda
Cyphert, A. B., & Garbutt, K. (2010). The Balkanization of university support systems: FERPA's chilling effect on campuses and how honors administrators can break the ice.

Research & Assessment
Cognard-Black, A. J., Smith, P. J., & Dove, A. L. (2017). Institutional variability in honors admissions standards, program support structures, and student characteristics, persistence, and program completion.

Student Showcase (Portz)
Osborne-Martin, E. (2002). Understanding Caesar's ethnography: A contextual approach to protohistory.

Teaching Methodology
Albert, A. M., & Bruce, K. E. (2002). Introducing the video web-board as a technologic enhancement to your honors course.

not previously represented in the literature. More importantly perhaps, the number of new authoring institutions for latter volumes (2015–19, inclusive) nearly matches that of the *Journal*'s earliest. Data suggest, then, an expanding circle of institutional contribution. It would be interesting to compare authoring institutions against member lists (past and present) to determine the extent of author/member institutional affiliation over time.

Figure 5. All Pages by Issue

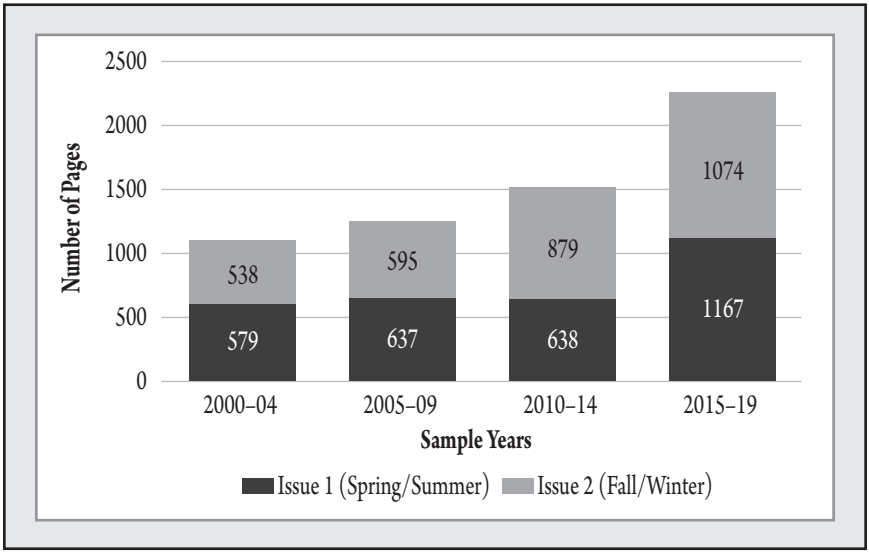
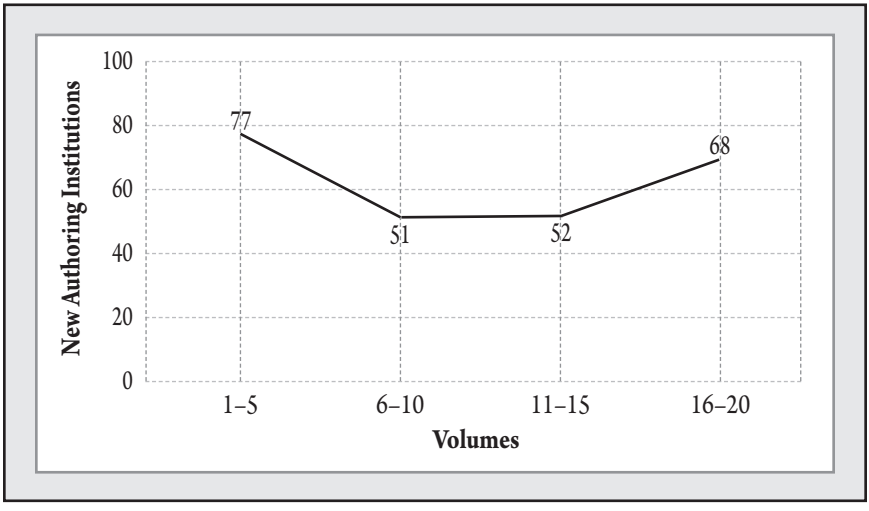


Figure 6. Unique Authoring Institutions by Volume

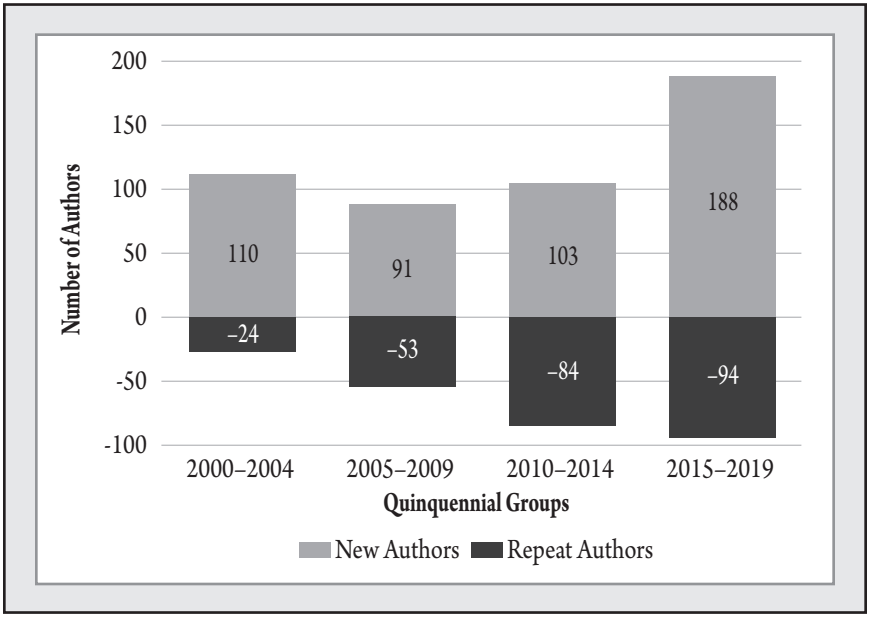


Of 747 total contributions, 255 were produced by authors previously published in the *Journal*. Figure 7 features quinquennial distribution of authorship, new and repeat. In terms of singular productivity, Figure 8 shows multiple contribution productivity of individual authors. Of 492 unique authors, 106 have contributed two or more articles over twenty volumes, nineteen (or 17.9%) of whom have produced five or more. The *Journal*'s most prolific author is Annmarie Guzy (University of South Alabama) with sixteen. In sum, 34% of total contribution comes from authors who have previously published one or more papers in the *Journal*, and 21.5% of authors have contributed two or more papers throughout publication.

The gender profile is almost equal, as shown in Figure 9.

Over the life of the *Journal*, nearly one-quarter (24.7%) of all (*n = 174*) members of the NCHC Executive Committee and Board of Directors have contributed papers. Total contribution from current members (2019, *n = 20*) is 37. In other words, the *Council*'s executive officers and leadership have demonstrated sustained contribution to its literature over time. Cumulative contribution from the *Journal*'s Editorial Board is equally impressive. Forty members (2000–2019) have contributed 102 papers, or 19.5% of total contribution. One distinctive characteristic of *Journal* authorship is the range of author classification from undergraduate student to university president,

Figure 7. Authorship, New and Repeat



college dean to field practitioner. Eight identifiers, exhibited in Figure 10, attest to an exceptional array of authorial orientation. The range of academic disciplines, too, is noteworthy and particular to the transdisciplinary nature of honors discourse. Fifty-four different disciplines are represented in the

Figure 8. Author Productivity

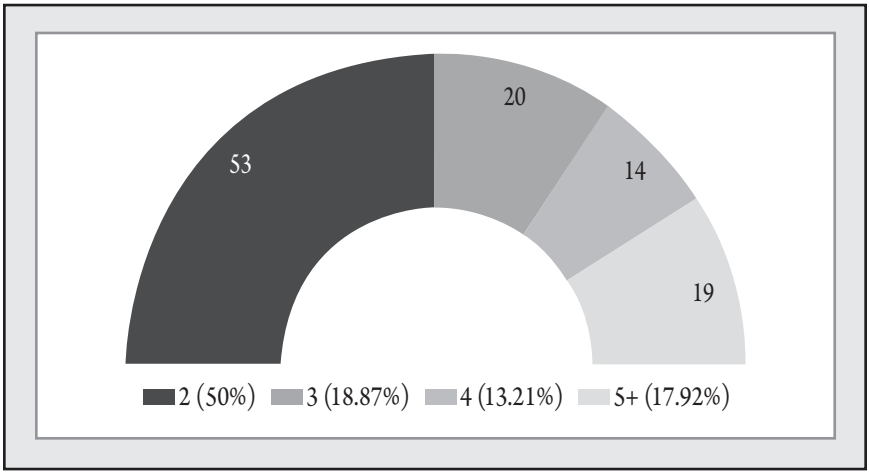
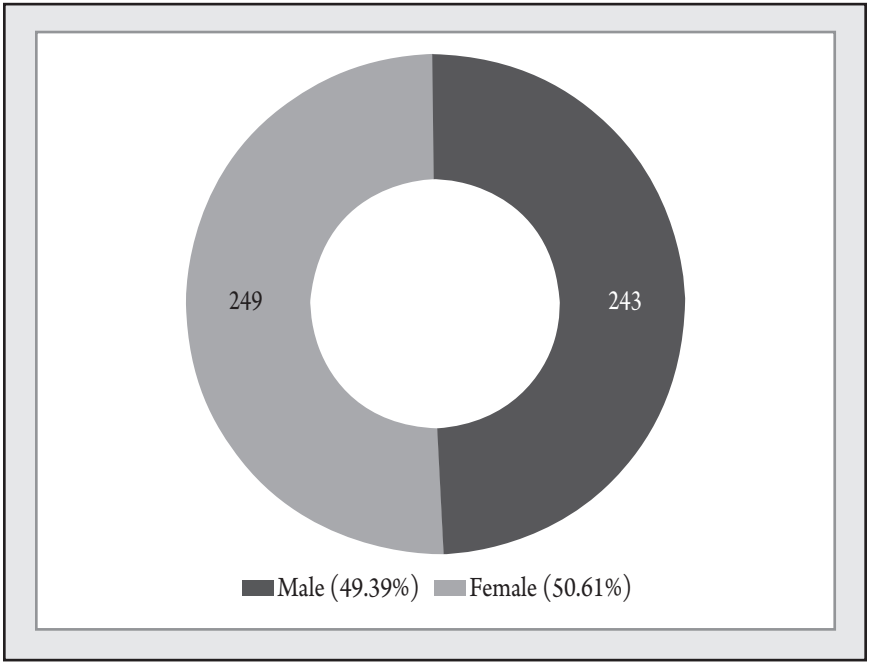


Figure 9. Author Gender Profile



Journal, ranging from accounting to women's studies. Appendix B provides a comprehensive alphabetic list.

Degree of Collaboration

Of all patterns relating to *Journal* authorship, perhaps the most striking is its profile in collaboration. While it is surprising to note that total contribution is split almost equally between single authors and collaborators (372 : 375), the depth of co-authorship and cross-institutional collaboration is remarkable. Nearly one-third (30.8%) of all articles (n = 522) are collaborative pieces. Figures 11 and 12 show author collaborations by classification for single and multiple institutions. A total of 161 articles are jointly written (118 coming out of the same institution and 43 from unique authoring institutions), with many involving multiple collaborators of two or more classifications (i.e., administrator with faculty and student and practitioner). Multiple-institution collaborations often involve authors outside the university, such as field practitioners and consultants; in contrast, partnerships with students are more likely to emerge from within a single institution.

In terms of co-authorship, however, the data suggest a depth and range of crosstalk exceptional for scholarly publication. Including repeats, 265 authors collaborated within their institution, and 110 teamed up with authors outside of it. The year of highest collaboration was 2015, with 85 authors contributing content in partnership with at least one other.

Collaboration intensity neatly varies across disciplines: it is inescapable in most sciences and negligible in most humanities (Franceschet & Costantini,

Figure 10. Author Classifications

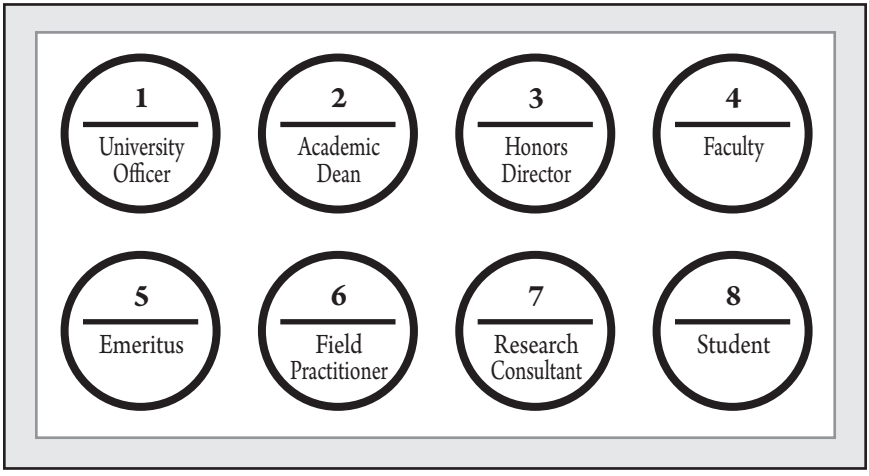
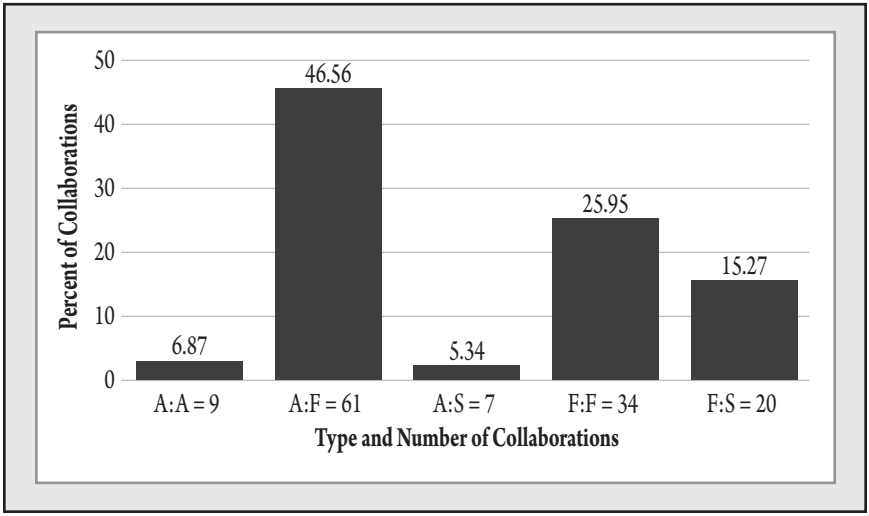
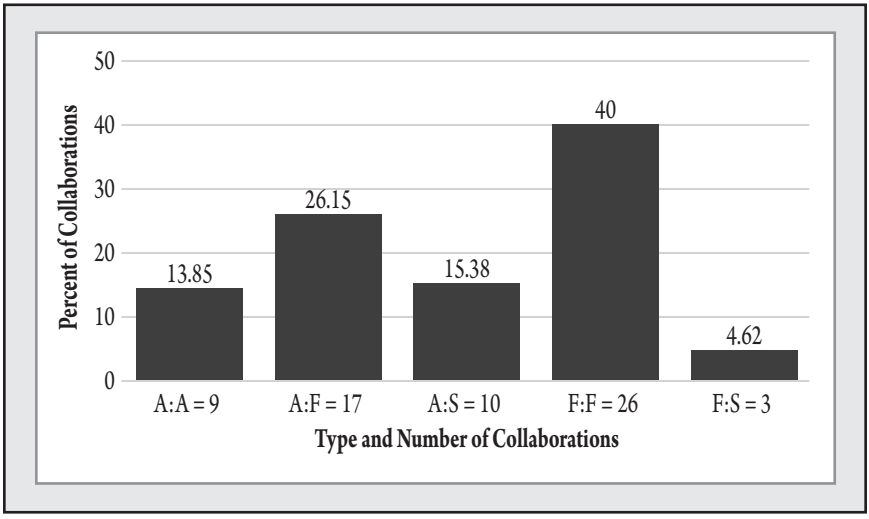


Figure 11. Typical Single-Institution Collaboration Patterns



Note: A:A = collaborations among University Officers, Administrators, Academic Deans, Honors Deans and Directors; A:F = collaborations among University Officers, Administrators, Academic Deans, Honors Deans and Directors, and Faculty (incl. Emeriti); A:S = collaborations among University Officers, Administrators, Academic Deans, Honors Deans and Directors, and Students; F:F = collaborations among Faculty (incl. Emeriti); F:S = collaborations among Faculty (incl. Emeriti), Students, and Other

Figure 12. Typical Multiple-Institution Collaboration Patterns



Note: Same as Figure 11 above.

2010). This data was further analyzed to study the association between the cardinality of author discipline and the degree of collaboration. Figure 13 shows a general positive association between co-authorship in the humanities and NSF-approved STEM fields. The correlation is stronger when the affiliations of authors are heterogeneous.

Collegiality

Official authorial collaboration aside, nearly ten percent ($n = 51$) of all articles formally recognize the help of at least one other in *Acknowledgments*. Since 2004, each volume has contained at least one article acknowledging the support of a colleague in publication.

Editorial Board Profile

The *Journal*'s editorial board has grown from 16 members in 2000 to 29 in 2019 (Figure 14). In its first twenty volumes, board members ($n = 37$) account for 19.5% ($n = 102$) of total contribution, represent 15 academic disciplines, and hail from 25 states. Of all board members, 86.4% ($n = 32$) have served in an administrative capacity at one time in their tenure: as academic dean, honors dean, or program director. Throughout the life of the board, male members have outnumbered women nearly two to one (24 / 13); ten original board members (vol. 1) continue to serve today (vol. 20); and nine are honored with emeritus status.

Research & Assessment

To differentiate between research and non-research articles, Peritz's definition of research was used: "Research is an inquiry, which is carried out, at least to some degree, by a systematic method with the purpose of eliciting new facts, concepts or ideas" (1980, p. 252). For this study, the content of each article was scanned, and relevant information was recorded and codified to reflect research methodology and systematic review.

Beginning in 2003, 142 articles are devoted to research and/or assessment practice (226 authors; 2046 pages). Figure 15 shows research output by year; Figure 16, in five-year increments. While essays involving research and assessment were published in early volumes, it was not until Volume 5 Issue 1 (2004) that contributions in research were named as such. The term "assessment" as a heading first appeared in 2006 (Volume 7 Issue 1). Any article meeting the criteria for research set forth by Peritz (1980) was codified as

Figure 13. Institutional Co-Authorship, Humanities and STEM

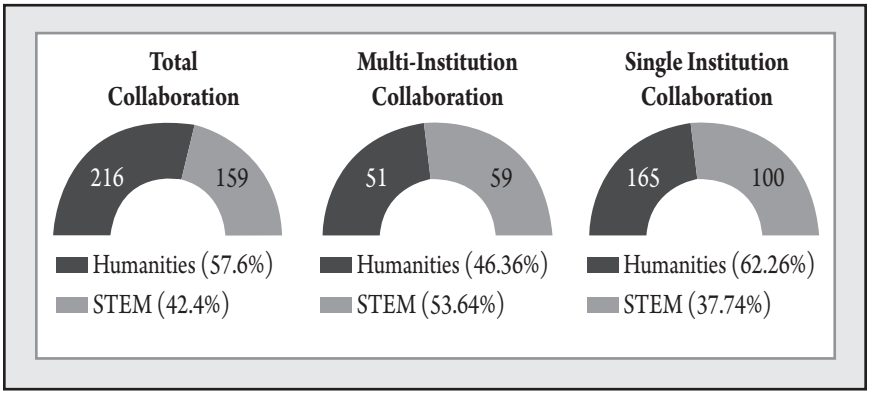
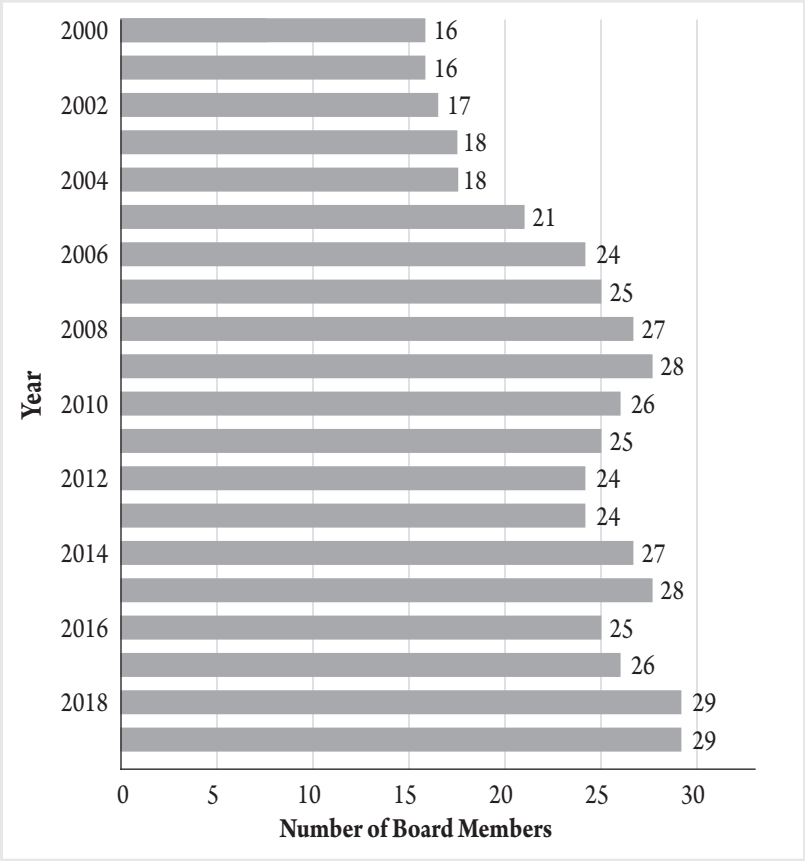


Figure 14. Editorial Board Membership by Year



such, regardless of where it appears in the issue (under Contents). Therefore, certain *Forum*, *Portz*, and other essays share the designation of research. In a similar vein, articles featuring cited references do not necessarily qualify as research and/or assessment.

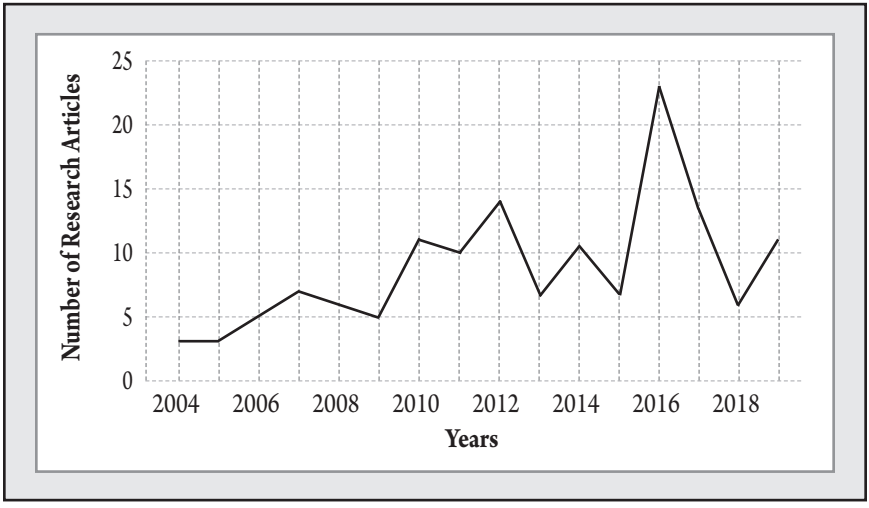
In sum, the *Journal* demonstrates steady decadal growth in this area, with zero output in 2000, five in 2009 (four from Research Essays), and eleven in 2019 (seven from Research Essays).

Analysis of Citations

The references provided by authors at the end of their articles are the basis of citation analysis. Citation traces a connection between two documents, one which cites and the other which is cited; it is a popular method for identifying what scholars are writing about, with a wide range of applications, and in this study, it is used to assess the following: what is read and referenced in honors; core themes and turning points in NCHC discourses; patterns and relationships between authors and documents; and the extent to which we are talking among ourselves (self-citation).

Citation analysis is based on the premise that authors cite documents they consider to be important in the development of their research; co-citation analysis records the numbers of papers that have cited any particular pair of documents and is interpreted as a measure for similarity of content. Therefore, frequently cited documents are likely to exert a greater influence on a discipline than those less frequently cited (Benckendorff & Zehrer, 2013; Tahai &

Figure 15. Annual Research Output



Meyer, 1999). NCHC's most impactful literature, as evinced in *Journal* citation counts, is noted by publication type in Figure 17. The most frequently cited unpublished sources are doctoral dissertations and conference presentations; ephemeral are mission statements and member listserv postings.

Annual Distribution

Since NCHC created a refereed journal in 1969 (*Forum for Honors*), the scholarliness of its journal has increased dramatically, at least insofar as quantitative indicators reveal. Before 2000, fewer than one-third of all articles contained cited references. Since its inaugural issue, this proportion has grown steadily. In 2009, just under two-thirds of all articles contained cited references, and in 2019, 23 out of 25 articles were referenced. The number of citations per referenced article has also increased steadily, from 9 in 2009 to 15 in 2019. The *Journal* features a total of 4721 cited references, each volume averaging 236. Figure 18 shows a general swelling of citations, with prototypal expansion and contraction, by year.

Age

The citation behavior of authors reflects cultural, technological, and normative behaviors, all acting in concert. In 2014, computer scientists at Google

Figure 16. Five-Year Research Output

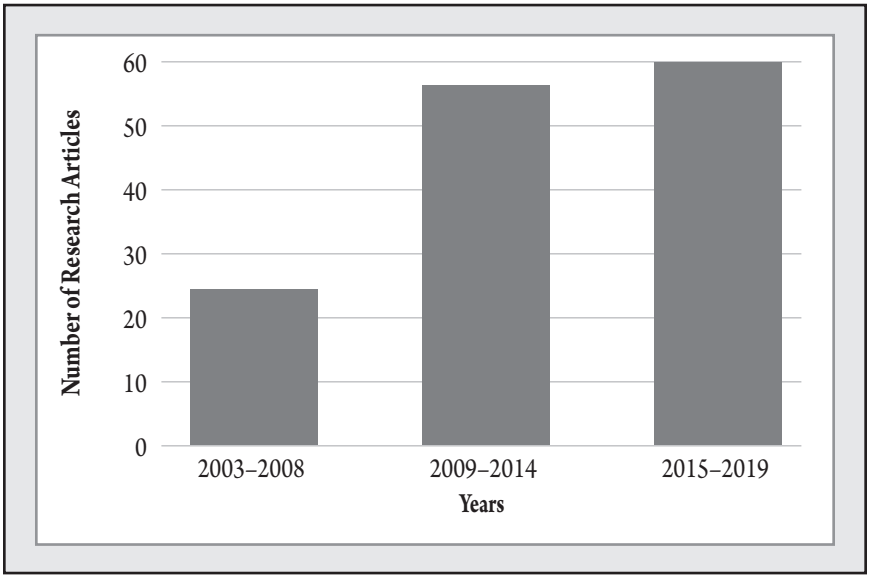
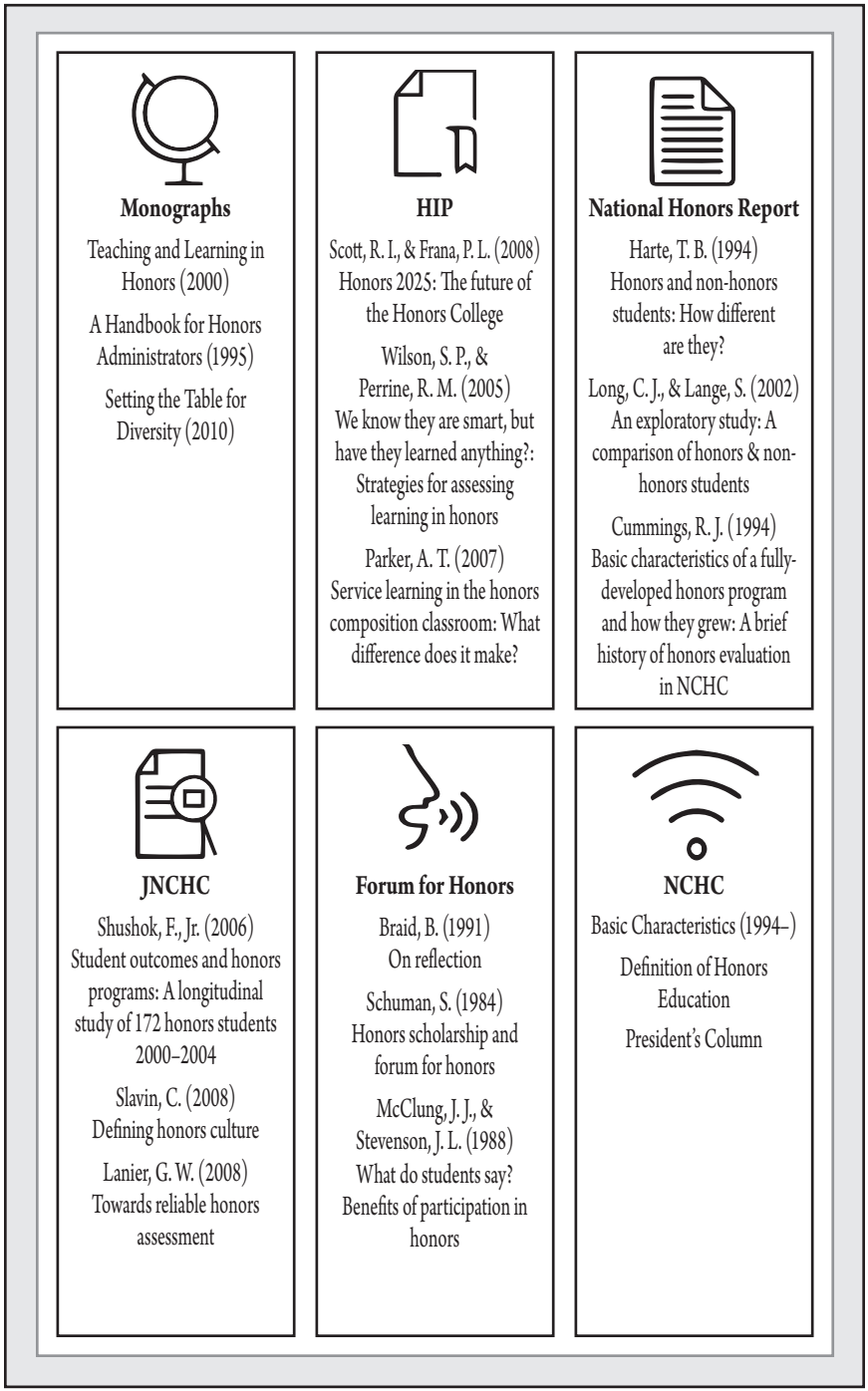


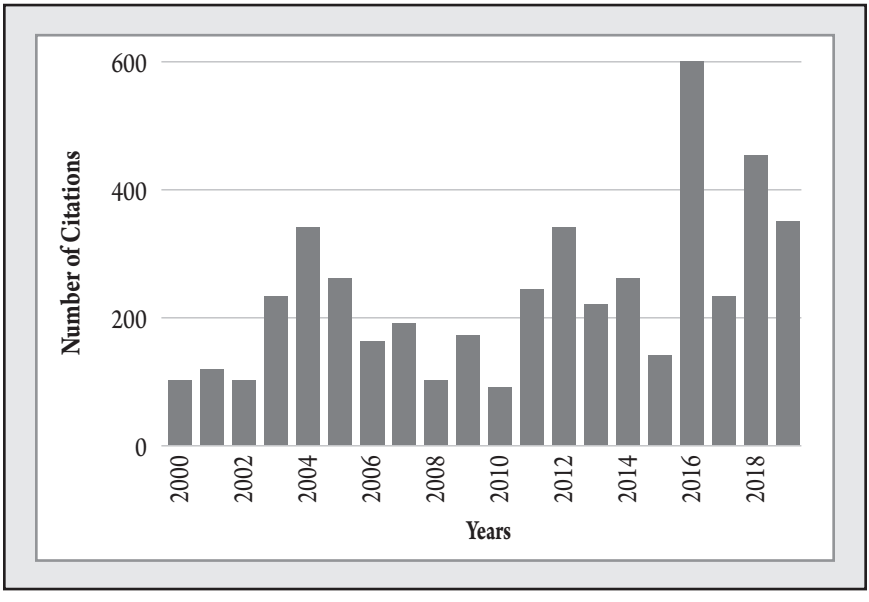
Figure 17. Most Frequently Cited Literature by Publication Type



Scholar published a report describing how authors were citing older papers ("older" defined as being ten or more years old). The researchers stated that scholars were citing proportionally more of the older literature and that this trend appeared to be increasing over time (Verstak et al., 2014), positing several explanations that focused on the digitization of publishing and stunning improvements to search and relevancy rankings. Others (Tenopir et al., 2015; Davis, 2015), however, maintain that while digital publishing and technologies were invented to aid the reader in discovering, retrieving, and citing literature, the trend of scholars citing older papers appears to predate many of these technologies. Equal credit, they point out, might be due to the photocopier, the fax machine, and email as was given to Google. Nevertheless, information scientists continue to examine the age of cited references to understand major structural shifts in the way research is produced, funded, and rewarded. A gradual move to fund incremental and applied research, for example, may result in fewer fundamental and theoretical studies being published. Giving credit to the founders, then, may require that authors cite an increasingly aging literature (Davis, 2015).

In the case of *JNCHC*, the age of cited references is considered for the purposes of dipping into the reservoir of what authors draw from to better understand the spread and complexity of its scholarly record as it is developing. Figure 19 profiles the age of cited references, with separate decadal

Figure 18. Annual Distribution of Cited References



augmentation. Note the increase in *n.d.* by decade, the majority of which are undated web elements indicating neither access nor origin.

Immediacy

While Google continues to espouse the Newtonian notion of "standing on the shoulders of giants," bibliometric researchers have for many years debated whether the rate of obsolescence (authors citing older work) has been increasing or decreasing. The broadest trend, across disciplines, is clear: in spite of huge growth in the number of journals and papers published each year, researchers' collective memory is deepening (Bohannon, 2014). In this context, it is sometimes useful to examine the extent to which current literature (same year, or immediate past year) is cited. This information can be especially revealing when it comes to *Forum* essays, which engage authors in timely and often spirited discussions on a particular theme. The currency of cited references is one indicator of the contemporaneity of such discourse.

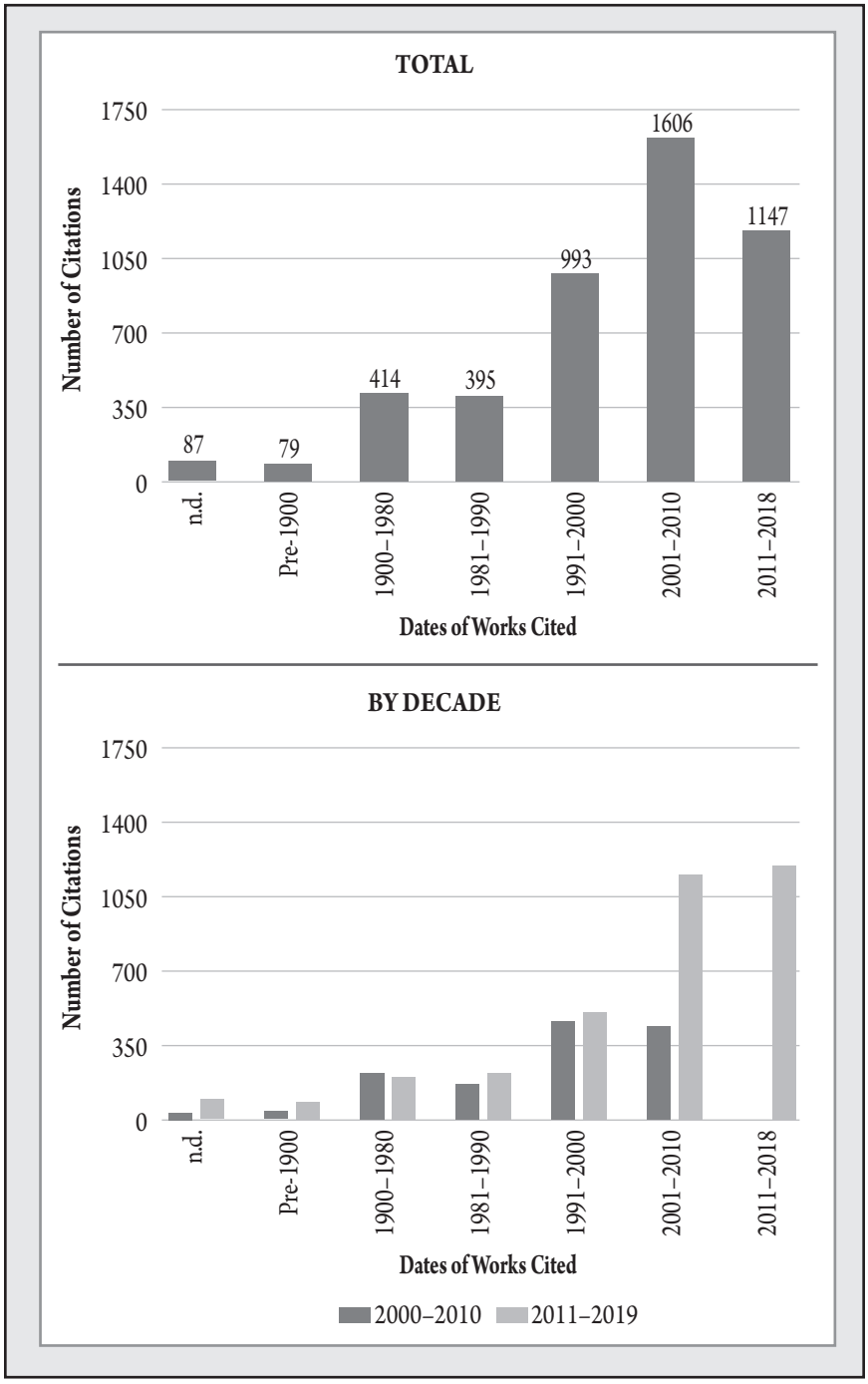
In this analysis, each article containing cited references was examined, and the publication dates of these papers were compared with those cited. The number of cited works that are of the same publication year or immediate two past years (≤ 2) as the paper citing them has increased steadily: 16 in 2000; 51 in 2009; 94 in 2019. This growth is remarkable. While it may be tempting to assume that the increase in the number of citations to current literature is due principally to technological advancements in document delivery and exchange, it is important to note that in 2000, before such mechanizations were in place, all nine citing articles (100%) pointed to current literature in print form. Volume 18 (2017) is the most contemporaneous volume, with 21 of the 24 citing articles referencing one or more items produced in the same year or immediate two past years (a total of 131 immediate references).

Although the number of such references has obviously increased, the percentage of all essays citing references has remained relatively consistent throughout the life of the *Journal* (71% in 2001; 86% in 2010; 77% in 2019). In other words, 71% of all articles published in 2001 feature a bibliography in one form or another, be it cited references at the end or footnotes throughout.

Document Types

While in the past one might have thought of the scholarly record as consisting primarily of text-based materials like journals and monographs, today the cohort of materials over which the scholarly record can potentially extend has expanded dramatically (Dempsey et al., 2014). For *JNCHC*, this cohort

Figure 19. Age of Cited References, Total and by Decade

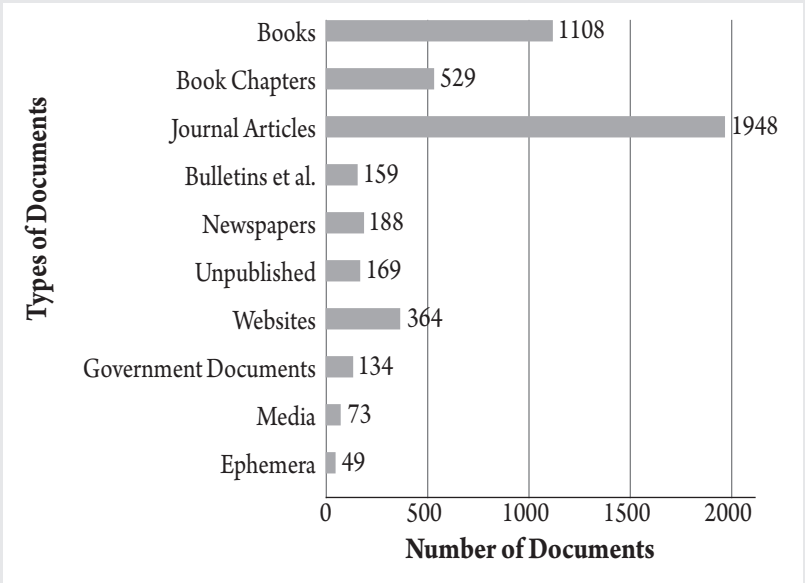


includes materials like data sets and survey instruments, leaflets and bulletins, lecture and symposia, rubrics and course catalogs, and Instagram posts. A profile of document types is provided in Figure 20.

Digital Objects

Across the twenty-volume spectrum, of the total 4721 cited references, 926 correspond to a digital object. A digital object is a "unit of information that includes properties (attributes or characteristics of the object) and may also include methods (means of performing operations on the object)" (Society of American Archivists, 2005). It can be a URL (uniform resource locator), document file (e.g., .pdf), video, blog, or image; in other words, it can be any object on the Web that is composed of data and formalized by schemes or ontologies that one can generalize as metadata (Hui, 2012).

Figure 20. Document Type Profile



Note: Books (print, electronic); Book Chapters; Journal articles (scholarly print, electronic); Bulletins et al. (newsletters, catalogs, trade press, factbooks); Newspapers (print, electronic); Unpublished (conference presentations, dissertations, white papers, lecture/symposia, annual reports, survey instruments, rubrics, test manuals); Websites; Government Documents (ERIC documents, GPO, census data, National Research Council); Media (blogs, video, software, film, music, images, social media posts); Ephemera (mission statements, personal correspondence, personal interviews, email)

This study examines digital objects in the form of scholarly documents, primarily journal articles and reports, that are either "born digital" or digitally remastered from original print. Of the 926 total digital objects, 797 are such documents; of these, less than 5% ($n = 38$) contain digital object identifiers, or DOIs.

A DOI is a unique and persistent string of characters used to identify a journal article, website, or other item of intellectual property, typically in digital form (Reitz, 2014). The DOI is persistent, meaning that the identification of a digital object does not change even if ownership of or rights in the entity are transferred. A DOI is actionable, meaning that clicking on it in a web browser display will redirect the user to the content; it is also interoperable, designed to function in past, present, and future digital technologies (Reitz, 2014). One might argue that the presence of DOI in cited references formally acknowledges the owner of the content in a scholarly context and the owner's belief that it is worthy of being made persistent. DOI citation first emerged in the *Journal* in 2012, with Debra K. Holman and James H. Banning's thorough and insightful investigation into dissertation abstracts in honors. It doesn't surface again until 2016, after which it remains constant (albeit scarce) through Volume 20. Figure 21 shows DOIs that are relative to digital documents in five-year increments. DOI is a standard prescript for citing online sources in all major (APA, MLA, Chicago) citation styles. More importantly, however, the absence of DOI, for both producer (NCHC) and end-user (readers), hinders effective access and usage of scholarly works, slows the pace of scholarly exchange, and ultimately threatens to stunt the growth of the *Journal*'s scholarly record.

Self-Citation

With the proliferation of citation-based metrics and increasing pressure on scholars to produce impactful research, the topic of self-citation (and its excesses) is a big one (VanNoorden & Chawla, 2019). Self-citation, broadly interpreted, is (a) a reference made in a written work to an article from the same **journal**, (b) a reference made in a written work to one or more of the **author**'s previous publications (book, periodical article, conference paper, etc.), and (c) a reference made in a written work to a publication or information artifact originating from the same **organization**, sponsoring agency, or funding body. Self-citation is an accepted practice in scholarly communication provided that important works written on the subject by other authors and in other journals are not neglected or ignored (Reitz, 2014).

This analysis considers self-citation at the journal, author, and organization levels. Because self-citation can make up a significant portion of the citations a journal gives and receives each year, and because self-citing rates are often used in journal evaluation, journal-level indicators are considered of primary importance in this study and were evaluated first. Table 2 shows self-cites by source (Council, *Journal*, author) in five-year increments. (Council aggregates *JNCHC* and all other works produced under the auspices of the National Collegiate Honors Council.)

Journal

A high volume of self-citation is not unusual or unwarranted in journals that are leaders in a field because of the consistently high quality of the papers they publish and/or the uniqueness or novelty of their subject matter (Institute for Scientific Information, 2002). Ideally, authors reference the prior publications that are most relevant to their current results, independent of the source journal in which the work was published. However, there are journals where the observed rate of self-citation is a dominant influence in the total level of citation. For these journals, self-citation has the potential to distort the true role of the title as a participant in the literature on its subject.

One of the first features that citation index editors look for when evaluating journal content is its rate of self-citation. Journals with self-citation rates above 20% (more than one in five references are from the citing journal) are defined as having "high self-citation rates" (Institute for Scientific Information, 2002). *JNCHC*'s cumulative rate of self-citation is 10.63%. Figure 22 shows a timeline of *Journal* self-citation in raw numbers and percentages.

Author

Self-citation is a hallmark of productive authors, and citing one's own work is common practice, understood to be an essential part of scholarly communication that reflects the cumulative nature of research, but it can also account for a significant portion of all citations in any single work. These self-references may result from the augmenting nature of individual research, the need for personal gratification, or the value of self-citation as a rhetorical and tactical tool in the struggle for visibility and scholarly authority (Fowler & Aksnes, 2007).

This level of analysis examines self-citation within the context of the work of an individual researcher and includes references to works produced outside of NCHC. The self-citation rate for *Journal* authors is exceptionally low

Figure 21. Digital Documents and their Identifiers

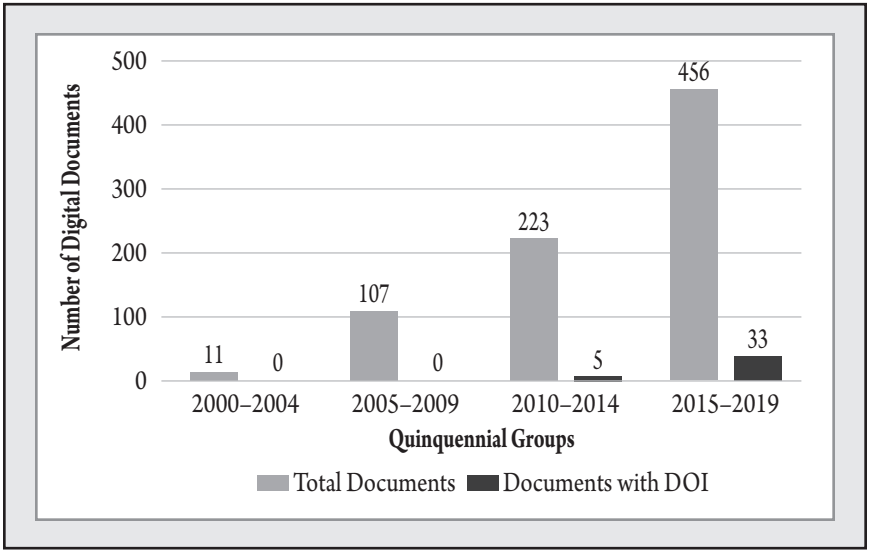
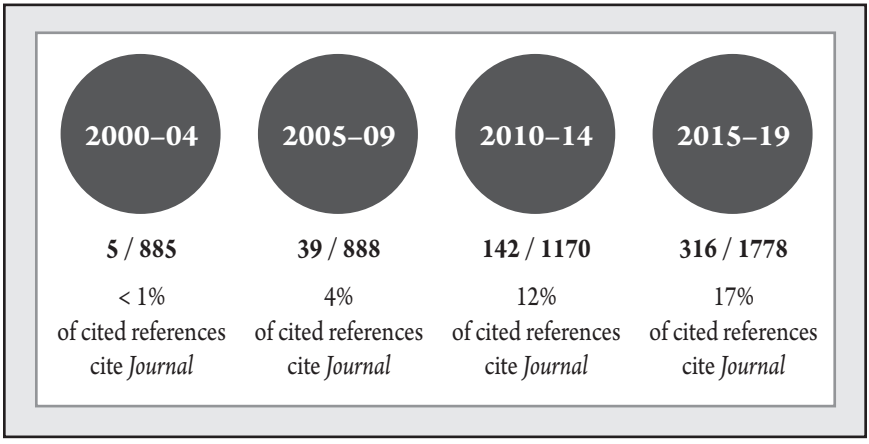


Table 2. Self-Citation by Source, 2000–2019

Years	Council	Journal	Author
2000–2004	60	5	4
2005–2009	101	39	7
2010–2014	238	142	8
2015–2019	538	316	43
Total	937	502	62

Figure 22. Journal Self-Citation Rate



(1.31%), especially given the nature of honors scholarship and the customary self-referential character of its *Forum*.

Organization

This study examined what NCHC resources our authors make use of, how old they are, and in what format they present themselves. *Journal* cited references derivative of its Council total 937. These types of references include, but are not limited to, its *Forum for Honors*, *National Honors Report*, monograph and serial publications, website (public and members-only), conferences, white papers, and other gray literature. Figure 23 provides a breakdown of Council self-cites by document type, excluding *JNCHC* (*n = 502*). Figure 24 shows the range of publication dates for Council cited references, including *JNCHC*.

Digital Objects and Document Delivery

Of all Council citations corresponding to digital objects (*n = 145*), 61% (*n = 89*) direct readers to the organization's webpage <https://www.nchchonors.org> and 39% (*n = 56*) to the Council's digital repository at the University of Nebraska-Lincoln <https://digitalcommons.unl.edu/natlcollhonors>.

In separate analysis, all Council cited references pointing to print publications available digitally were examined to determine how many references cite print after digital versions were made available through UNL's *Digital Commons* (c. 2007). Of 768 total such references (NCHC publications available in both print and electronic form), only a small percentage (8%) link to UNL's institutional repository. All other cited references name the original print (Figure 25).

LIMITATIONS

One of the major benefits of a bibliometric study is the production of a set of themes, disciplines, seminal sources, influences, and influencers that may benefit potential authors in determining whether their manuscript is suitable for publication in a specific discipline or journal (VanLeeuwen, 2006). A potential for researcher bias exists in this study since coding was done by one coder only. Greater validity for the assignment of disciplines and core subjects may be achieved by having a large team of researchers for analysis or using multiple researchers for all cited references.

Figure 23. Council Self-Cites by Document Type

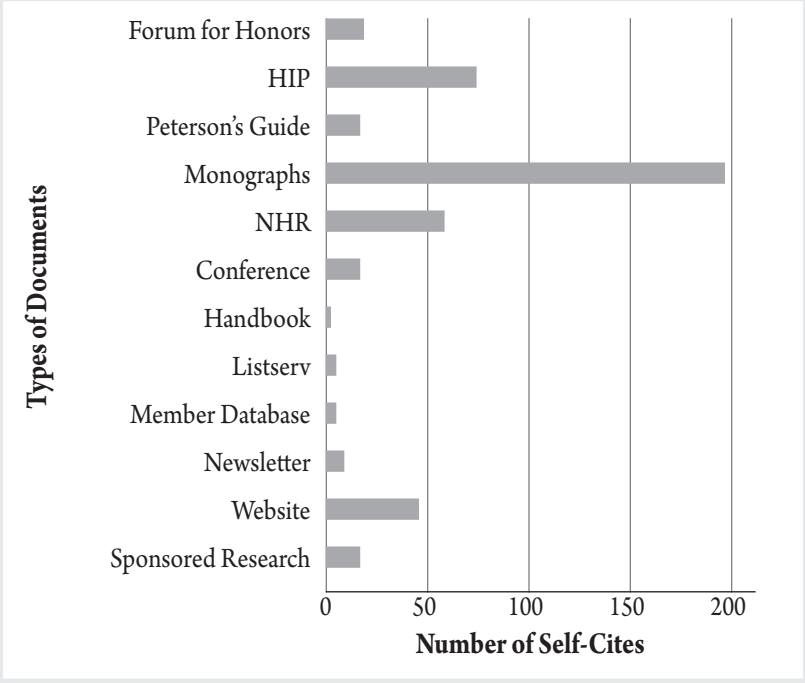
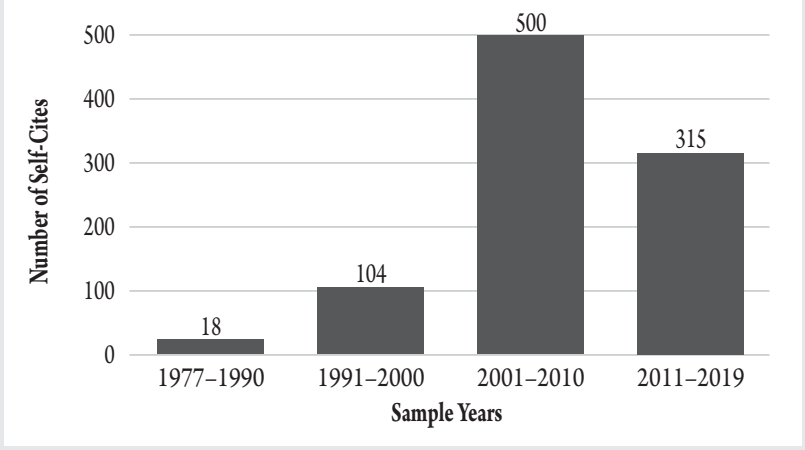


Figure 24. Council Self-Cites by Publication Date

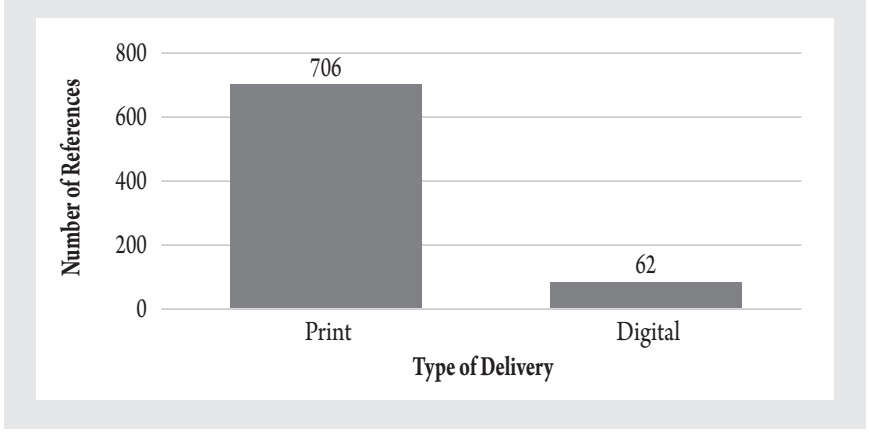


Also, given that quantitative metrics are often inadequate for assessing the research output of a particular journal, every effort and methodological strategy was guided by the bibliometrician's gold standard: reading the publication and talking to experts responsible for its content. This analysis was conducted in the "old-fashioned" way, using Excel and recording by hand bibliographic elements correspondent to all 6107 pages and 4721 cited references. Since there was no sampling of data nor abstracts from which to draw essential information, this kind of analysis was deemed the most effective way to collect the data, based on the availability of *JNCHC*, but it did take a great deal of time. An independent review of data and comparison and compromising of coding are likely to provide the most consistent and accurate results.

IMPLICATIONS

As the official research journal of the National Collegiate Honors Council, *JNCHC* is one of the most widely recognized and frequently cited honors education research journals; it is one of the few honors-specific journals to be considered a core journal of the profession. Furthermore, *JNCHC* is the oldest and largest journal devoted specifically to honors education, and it includes fifty-four different disciplines in the questions it attempts to address. Therefore, the *Journal* would seem ideally suited to serve as a reasonable barometer for describing the practical and theoretical trends of the last twenty years in the field of honors education. Mogil et al. (2009) and Tirovolas and Levitin (2011) made similar assertions in their bibliometric analyses of individual

Figure 25. Cited References to NCHC Publications, Print and Digital Delivery



serial titles (*Pain* and *Music Perception*), which proved to be practical reflections of entire fields of research.

The results of this study demonstrate that while *JNCHC* is above all an honors education journal, it invites a high level of interdisciplinarity, reflective teaching practice, and assessment in higher education. An interesting extension of this study might be to further evaluate the *Journal*'s content and citation patterns to identify megatrends in honors education. With the primary aim to describe publication patterns in categories derivative of external literature, text-mining software and univariate keyword analysis (keyword count and case occurrences) could be used to establish domains of discourse (i.e., diversity, metacognition, housing, service learning, grades) and then evaluate their frequency. Megatrends, which typically play out over decadal time frames, might be identified, codified, and perhaps recapitulated in ways meaningful to honors and honors organizations worldwide.

A secondary aim would be to identify commonly cited authors, articles, and journals to describe "crosstalk" that occurs between *JNCHC* and other journals. Bibliographic coupling (Reitz, 2014) is a similarity measure that uses citation analysis to establish a relationship between documents, and it occurs when two works reference a common third work in their bibliographies. The investigation of bibliographically related scholarly papers is most easily achieved within the construct of citation indices (*Scopus*, *Web of Science*, *Google Analytics*) and is likely to be of interest to researchers in both honors and beyond.

Collectively, these two aims would provide a thorough description of *JNCHC* content trends and allow inferences to be made about the evolution of collegiate honors education and its profession as well as its contributions to literatures outside itself.

CONCLUSION

Paraphrasing Dryden's comment on Chaucer, "here is God's plenty!," Sam Schuman in 1984 predicted a "splendid future" for research in honors (reprinted in Schuman, 2004, p. 23), noting "abstraction and documentation" as two important characteristics of "good scholarly writing" (p. 19).

Bibliometrics offer a robust set of methods and measures for studying the structure (abstraction) and process (documentation) of scholarly communication. Article and citation analyses are being applied in new ways, to ask new questions. Documents are no longer viewed simply as stable artifacts; rather, they are malleable, mutable, and mobile (Bishop, 2000) and can have a "social life" (Brown et al., 2017). Through the work of its Publications

Board, the National Collegiate Honors Council is keeping pace, striving to achieve balance between access and ownership, collation and distribution, while maintaining the highest levels of authorial and editorial integrity.

In the last twenty years, NCHC has demonstrated through its seminal *Journal*, a steadfast commitment to pushing ahead the boundaries of knowledge through research, advocacy, and intellectual exchange. Its *Journal* stands as a marker for the state of knowledge about honors education; it is replete with illustrations, sometimes dramatic or humorous, of why honors matters and with energetic and intelligent articulations of complex problems and innovative solutions—a scholarly record, as Schuman puts it, both "central and peripheral" (p. 21) to the organization it serves.

ACKNOWLEDGMENTS

The practice of evaluative bibliometrics is an intellectual task. The analysis of documents in order to develop descriptive and performance indicators is also an intellectual operation, while the steps involved in inputting this information are largely clerical and woefully time-consuming. Unlike almost anything else in modern life, no machine can perform this complicated combination of tasks. I am grateful to Long Island University for granting me a sabbatical leave toward this end. I also express my sincere gratitude to Larry Andrews and Andrew Cognard-Black who, in the City of Brotherly Love, so generously offered thoughtful suggestions toward the betterment of the study, and to Mitch Pruitt, Printer Extraordinaire, for feeding my number crunching appetite, fresh off the press. Finally, I thank the Publications Board of NCHC for the opportunity to more fully contribute my range of expertise in the field of library and information science to this reputable and worthy organization.

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APPENDIX A

Authoring Institutions, 2000–2019

AAC&U
ADA University
Alfred University
American Honors
Angelo State University
Appalachian State University
Arizona State University
Arkansas State University
Auburn University
Austin Community College
Azusa Pacific University
Ball State University
Baylor University
Belhaven University
Bemidji State University
Blinn College
Broward College
Butler University
Cal Poly Pomona
Cameron University
Central Michigan University
Century College
Clarion University of Pennsylvania
Clemson University
Coastal Carolina University
Colby-Sawyer College
College of Charleston
College of New Rochelle
College of St. Catherine
College of St. Scholastica
Colorado State University
Columbia College
Community College of Allegheny County
Community College of Baltimore
Community College of Spokane
Concordia University
Creighton University
Denison University
Eastern Illinois University
Eastern Kentucky University
Eastern Washington University
Elon University
Emory & Henry College
Florida Atlantic University
Florida Gulf Coast
Florida International University
Framingham State University
Gainesville College
Georgia Perimeter College
Georgia Southern University
Georgia State University
Glendale Community College
Glenville State College
Governors State University
Graceland University
Grand Valley State University
Grayson County College
Greenville Technical College
Hampden-Sydney College
Hanze University of Applied Sciences
Heartland Community College
Hinds Community College
Hiroshima University
Hofstra University
Hood College
Illinois State University
Illinois Valley Community College
Indiana University
Indiana University, Kokomo
Indiana University of Pennsylvania

Indiana University, Southeast
Iona College
Iowa State University
James Madison University
Judson University
Keene State College
Kent State University
LaGuardia Community College
Lane Community College
Leiden University
Les Roches Gruyère University of Applied Sciences
LIU Brooklyn
LIU Post
Longwood University
Loras College
Louisiana Tech University
Loyola Marymount University
Loyola University
Lynchburg College
Marymount University
Maryville University
Memorial University of Newfoundland
Mercy College
Mesa State College
Metropolitan State College
Miami University
Middle Tennessee State University
Minnesota State University, Mankato
Monmouth University
Monroe College
National Endowment for the Humanities
National Science Foundation
Niagara University
Norfolk State University
Normal College, Shenzhen University
North Carolina A&T State University
North Carolina State University
North Dakota State University
North Park College of Nursing
Northeastern University
Northern Arizona University
Northern Illinois University
Northern Kentucky
Northwestern College
Nova Southeastern University
Oakland University
Ohio University
Oklahoma State University
Oral Roberts
Orange Coast College
Pace University
Pacific University
Paranjá Federal University
Pennsylvania State University
Purdue University
Red Rocks Community College
Roger Williams University
Rogers State University
Rotterdam UAS
Rutgers University
Saint Xavier University
Salem State University
Salisbury University
Sam Houston State University
San Diego State University
Saxion University of Applied Sciences
Seminole Community College
Shaw University
Siberian Federal University
South Carolina College
South Dakota State University
South Florida Community College
Southeast Missouri State
Southeastern Oklahoma State University
Southern New Hampshire University

Southern Oregon University
Southern Polytechnic State
Southern Utah University
Southwest Baptist University
Southwest Texas State University
Springfield Technical Community College
St. Joseph's College
St. Louis University
St. Mary's College
State University of New York, Albany
State University of New York, Oswego
Stephen Austin State University
Swinburne University, Australia
Syracuse University
Tecnológico de Monterrey
Texas A&M
Texas Christian University
Texas State University
Texas Tech University
Universidad Alberto Hurtado
University of Alabama, Birmingham
University of Alaska, Anchorage
University of Alaska, Fairbanks
University of Alaska, Southeast
University of Arizona, Tucson
University of Ballarat
University of Baltimore
University of Brasilia, Brazil
University of California, Davis
University of Central Arkansas
University of Central Florida
University of Connecticut
University of Delaware
University of Denver
University of Florida
University of Georgia
University of Houston
University of Idaho
University of Illinois
University of Iowa
University of Kansas
University of Kentucky
University of Maine
University of Maryland, Baltimore
University of Maryland, College Park
University of Minnesota, Morris
University of Missouri, Columbia
University of Nebraska, Kearney
University of Nebraska, Omaha
University of Nevada, Las Vegas
University of Nevada, Reno
University of New Mexico
University of New Orleans
University of North Alabama
University of North Carolina, Asheville
University of North Carolina, Charlotte
University of North Carolina, Wilmington
University of North Florida
University of North Georgia
University of Northern Colorado
University of Oregon
University of Oxford
University of Pittsburgh
University of Rochester
University of Scranton
University of South Alabama
University of South Carolina
University of Southern Maine
University of Southern Mississippi
University of Tennessee, Chattanooga
University of Tennessee, Knoxville
University of Texas, Austin
University of Texas, El Paso
University of Texas, San Antonio
University of Utah
University of Vermont

University of Washington
University of West Florida
Utah State University
Utrecht University
Valencia Community College
Valparaiso University
Virginia Commonwealth
Virginia Tech
Wabash College
Wageningen University & Research
Washington State University
Wayne State University
West Virginia University
Western Carolina University
Western Illinois University
Western Kentucky University
Western Oregon University
Western Washington University
Westminster College
Wichita State University
Windesheim University of Applied Sciences
Winston-Salem State University
Winthrop University
Wright State University
Xavier University
York College

APPENDIX B

Academic Disciplines, 2000–2019

Accounting
Agriculture
Anatomy & Physiology
Anthropology
Architecture
Art
Biochemistry
Biology
Business
Chemical Engineering
Chemistry
Classics
Communication Arts
Communication Sciences
Computer Science
Criminal Justice
Design
Earth Science
Ecology
Economics
Education
Engineering
English
Environmental Science
Forestry
Geography
Geology
Geosciences
German
Health Science
History
International Relations
Journalism
Languages and Cultures
Law
Library
Marine Science
Mathematics
Medicine
Modern Languages
Neuroscience
Nursing
Nutrition
Philosophy
Physics
Political Science
Psychology
Public Policy
Religion
Sociology
Spanish
Speech
Theater
Women's Studies