

## Topics and Networks: Mapping Forty Years of Scholarly Inquiry

Kristine Johnson

Intellectual histories of writing program administration often end around the moment when this journal became a scholarly publication (Strickland; Trimbur). After what Amy Heckathorn describes as a long struggle toward group identity, writing program administrators claimed intellectual authority in the late seventies by forming an independent organization and establishing a journal (206). Edward Corbett similarly interprets this formative moment as final achievement, claiming that “the WPA is now fully enfranchised . . . the future of the Council of Writing Program Administrators is securely cast. The annals of this organization may be short and simple, but before long, those annals will be voluminous and complex” (70). Over two million words have been published in *WPA: Writing Program Administration*, and they fulfill this prediction: WPAs have developed a rich body of scholarly inquiry. Yet unlike scholars in composition studies, who have historicized theoretical and pedagogical movements and contested the presence of various turns and paradigm shifts, WPAs have not fully answered these questions about their own scholarly production: What subjects are within the province of our work? What are our shared questions, and how have they changed (or not) over time? What are the distinct areas of inquiry in our field?

Editors of *WPA* have answered these questions most directly, outlining topics that should appear in the journal and making claims about its intellectual progress. In 1979, Kenneth Bruffee first named these shared questions: large-scale testing, faculty development, evaluating writing faculty, grants, government relations, public relations, leadership strategy, budgeting, working conditions, teacher training, program planning, curriculum, tenure and promotion, and basic writing (8). Subsequent editors called for articles addressing—among many other topics—administration as intellectual work, political and economic issues in writing programs, the rela-

tionship between secondary and postsecondary writing, and the diversity of programs represented in the field (Hesse 1994; Helmers and Lynch; Hornung). Reflecting on the last forty years, the current editors argue that this expanding scope represents progress: “The topics represented in this journal and the range of expertise required for program administrators have expanded, matured, and multiplied . . . the questions we ask have moved beyond ‘how to’ to embrace the ‘why to’ of our more diverse practices and programs” (Ostergaard, Nugent, and Babb 10). Although narratives of progress and professionalization seem positive, Douglas Hesse argues the field has drifted from its original allegiances to teaching and writing, creating a self-perpetuating need for administrators and administration. After nearly forty years, he contends, “writing program administration is centrally concerned with writing program administration” (136). WPA scholarship has developed over forty years, but we have not fully or systematically supported this claim with evidence from the scholarship itself.

I offer answers to questions about the intellectual history of writing program administration by constructing a topic model of *WPA*. A computational method sometimes called distant reading or macroanalysis, topic modeling offers a systematic way of identifying the themes running through large corpora, understanding how they are related to one another, and mapping them over time. My corpus-based methods offer only one broad perspective on the journal, and this study should be read alongside other articles in this issue; however, I believe my approach offers a fruitful way to begin historicizing WPA scholarship and answering questions about the province, focus, and development of the journal.

## MODELING SCHOLARLY JOURNALS

Topic modeling (specifically Latent Dirichlet Allocation, or LDA) algorithms offer researchers a reliable way to identify and index the themes running through large bodies of text. The assumption underlying topic modeling is that any document exhibits multiple topics, which are clusters of related words, but in varying proportions. For example, a topic model of the first three paragraphs of this article might identify WRITING PROGRAM ADMINISTRATION and HISTORY as topics, with HISTORY consisting of words such as *history*, *moments*, *historicized*, *time*, and *years*. According to David Blei, who developed LDA, the goal of topic modeling is to “infer the hidden topic structure” in a corpus, which can be “thought of as ‘reversing’ the generative process—what is the hidden structure that likely generated the observed collection?” (79). If writers generate text from distinct topics, then topic modeling attempts to reverse engineer that process. Successful topic

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models should consist of topics that those acquainted with the corpus find coherent, and words within a topic should be conceptually related.

As an analytical method, topic modeling is objective in one important way: it does not ask researchers to impose meaning on the corpus by establishing their own categories. The algorithm treats each document as simply a “bag of words” (Blei 82), and it contains no semantic information. For this reason, topic modeling identifies potentially novel topics—categories not already established in the field. Topic modeling also has limitations, one of which is that it may not neatly categorize each word in the corpus. Andrew Goldstone and Ted Underwood, who built a topic model of *PMLA*, note that algorithms may produce “largely coherent topics with ‘intrusive’ words . . . and there is the omnipresent low-level froth of randomness” in the way some words are assigned to topics (365). And for language scholars, another potential limitation is that topic modeling addresses only word occurrences and not word order.

The corpus for my study includes all *WPA* articles—excluding book reviews, interviews, and reprinted speeches—from 1979 through 2017, and it contains 2,308,386 words. To prepare the corpus for modeling, I took these steps:

1. I split each article into plain text documents containing about 500 words because topic modeling is most accurate with shorter documents.
2. Using the statistics software R, I stripped these documents of case, punctuation, numbers, and the list of English stopwords (conjunctions, articles, prepositions) typically used in topic modeling.
3. I created the Document-Term Matrix (DTM) from which the topic model will be generated and limit that matrix to words that occur in at least 95% of the documents.

I ran the LDA using R, asking it to identify forty topics and to list the words that constitute those topics.<sup>1</sup> When the model was produced, I eliminated eight topics from consideration. These topics, which featured very common words and were not semantically coherent, cannot answer questions about the content of the scholarly conversation; one such topic consisted of mostly modal verbs: *will, must, need, can, may, well*, and *best*. These excluded topics could be interesting to the extent that they suggest that *WPA* scholarship includes a relatively high proportion of imperatives and hedges, but that finding is tangential to the project of indexing themes in the journal.

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## A TOPIC MODEL OF WPA

The thirty-two coherent topics offer one index of the themes in this journal, and many align with the areas of inquiry Bruffee and later editors included in their vision for the journal. I have named topics after the highest probability word within the topic or with word(s) of my choosing that best describe the topic. Reflecting the close relationship between writing program administration and the field of rhetoric and composition, one set of topics addresses composition theory. Table 1 outlines the topics associated with rhetoric and composition, listing the words most strongly associated with the topic.

Table 1  
Rhetoric and Composition Theory

Topic	Words in the Topic
RHETORIC AND COMPOSITION	<i>composition, rhetoric, studies, field, instruction, many, discipline, teaching, theory, programs</i>
PRACTICES	<i>practices, practice, theory, approach, pedagogy, critical, pedagogical, reflection, ways, thinking</i>
KNOWLEDGE	<i>knowledge, disciplinary, expertise, disciplines, discipline, content, academic, across, activity, context</i>
RESEARCH STUDIES	<i>research, study, studies, scholarship, articles, field, article, academic, recent, evidence</i>
SOCIAL DISCOURSE	<i>social, public, political, cultural, within, discourse, culture, critical, also, world</i>

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A second set of topics addresses teaching, pedagogy, and classrooms (see table 2). The first two topics refer to college writing instruction and students in college writing classrooms, and the next two refer to the texts that students produce and read. Three specific pedagogical issues also emerged as topics: information in the context of source use and online technologies, community and service learning projects, and second language writers and writing.

Table 2  
Teaching, Pedagogy, and Classrooms

Topic	Words in the Topic
WRITING	<i>writing, instruction, across, write, writers, college, emphasis, kinds, demands, learn</i>
STUDENTS	<i>students, student, class, classes, learning, work, classroom, help, learn, experiences</i>
PAPERS	<i>paper, papers, write, assignments, assignment, process, essay, written, student</i>
READING	<i>reading, texts, rhetorical, text, analysis, use, argument, read, ideas, sources</i>
INFORMATION	<i>information, use, online, technology, can, computer, using, design, access, available</i>
COMMUNITY LEARNING	<i>learning, community, work, project, service, projects, collaboration, can, development, engagement</i>
SECOND LANGUAGE	<i>language, students, writers, second, esl, diversity, grammar, needs, academic, english</i>

While these first two groups of topics could reasonably appear in any composition journal, other topics address administrative issues unique to writing (see table 3). For example, COURSES represents students in the institutional context of *required courses*, *first-year courses*, and *curriculum*. Other topics include writing assessment, portfolio assessment, course placement, and surveys used for programmatic purposes; curricular change and revision, particularly as it relates to standards and goals; and the work of administering writing centers and writing across the curriculum programs.

Table 3  
Administrative Issues in Writing

Topic	Words in the Topic
COURSES	<i>course, courses, students, first year, writing, required, general, skills, curriculum, taught</i>
SECTIONS AND SEMESTERS	<i>two, first, semester, one, three, year, four, sections, five, hours</i>
PLACEMENT	<i>students, placement, test, scores, tests, basic, testing, exam, english, college</i>
ASSESSMENT	<i>assessment, evaluation, local, use, assessments, values, assess, mission, institutional, methods</i>
PORTFOLIOS	<i>portfolio, portfolios, readers, scoring, raters, essay, scores, grading, one, read</i>
SURVEYS	<i>survey, data, responses, respondents, questions, results, asked, question, reported, indicated</i>
CURRICULAR CHANGE	<i>new, change, curriculum, system, changes, model, curricular, systems, process, changing</i>
OUTCOMES STATEMENT	<i>outcomes, goals, statement, document, policy, documents, guide, standards, also, common</i>
WRITING CENTERS	<i>writing, center, centers, tutors, directors, tutoring, lab, support, work, tutor</i>
WAC	<i>program, programs, administrators, wac, writing, support, across, institution, many, university</i>

Another set of topics addresses institutional structures and managerial issues that—perhaps with the exception of ENGLISH DEPARTMENTS—are not unique to writing (see table 4). They describe people and administrative structures within the university, the relationship between higher and secondary education, and communication on (or across) a university campus.

Table 4  
Institutional Structures

Topic	Words in the Topic
INSTITUTIONAL STRUCTURES	<i>program, department, director, committee, university, administrative, administration, chair, dean, years</i>
ENGLISH DEPARTMENTS	<i>english, writing, department, literature, departments, courses, freshman, university, degree, curriculum</i>
COLLEGE AND HIGH SCHOOL	<i>college, education, school, institutions, university, colleges, high, higher, schools, state</i>
CAMPUS COMMUNICATION	<i>campus, communication, university, place, also, ways, many, important, another</i>
FACULTY	<i>faculty, teaching, members, part time, professional, teach, full time, colleagues, development, staff</i>

The final set of topics addresses writing program administration itself (see table 5). Beyond writing about WPA work and related subjects of *power* and *authority*, authors in this journal also address administrative activities that extend beyond writing courses and even writing programs: mentoring graduate WPAs, teacher training, and faculty development.

Indexing the topics in this journal offers preliminary answers about its province. Writing across the curriculum and writing centers are distinct topics, as are specific pedagogical issues such as community-based learning and second language writing. Yet the algorithm did not identify other themes that we might predict run through the scholarship, such as labor conditions or race and gender. (Not being identified by the algorithm does not mean these themes are absent from the journal, but the words associated with them were not frequent enough to produce a topic.) The topic model also gives some insight into the methodological characteristics of the field—survey research is a clear example—as well as the issues in composition theory that WPAs find most important.

Table 5  
Writing Program Research and Administration

Topic	Words in the Topic
WPA WORK	<i>wpas, wpas, work, administration, administrative, position, positions, administrators, intellectual, job</i>
POWER	<i>power, authority, leadership, model, one, others, agency, can, collaborative, within</i>
GRADUATE DEVELOPMENT	<i>graduate, work, conference, professional, experience, mentoring, training, preparation, development</i>
TEACHER TRAINING	<i>teaching, teachers, teacher, tas, classroom, new, training, teach, experience, experienced</i>
INSTRUCTOR DEVELOPMENT	<i>instructors, group, instructor, participant, groups, also, workshop, participants, process</i>

### FROM TOPIC MODEL TO NETWORK MODEL

Topic modeling produces useful information about the content of a corpus, and visualizing the topics as a network reveals how (or if) particular topics are related to one another. The network model of this journal (see figure 1) is not especially diffuse because the discourse is highly specialized. My network model represents the strength of the relationship between topics with the weight of the line, and it pushes topics with many weaker connections to the periphery.<sup>2</sup>

The network model reveals two clusters that represent distinct areas of inquiry in the journal. First, the strong relationship among ASSESSMENT, PORTFOLIOS, and PLACEMENT suggests that program-level assessment is a coherent theme. Beyond this cluster, PORTFOLIOS has strong relationship with SECTIONS AND SEMESTERS and PAPERS, and readers of this journal will understand these relationships: placement assigns students to specific courses and/or sections and often relies on written products. PLACEMENT has a strong relationship with SURVEYS and COLLEGE AND HIGH SCHOOL, and again these relationships reflect the reality that placement occurs between high school and college and often uses surveys. Second, WPA WORK has a strong relationship with both POWER and GRADUATE DEVELOPMENT, and WPA WORK and POWER both have a relationship with INSTITUTIONAL STRUCTURES. This cluster highlights the idea that writing program admin-

istration is intellectual work for which graduate students need preparation, and it reveals that discussions of writing program administration regularly address power and authority. When power is addressed in this journal, it is most often in the context of administration—in the institutional realities of departments, committees, and deans—rather than pedagogy or language.

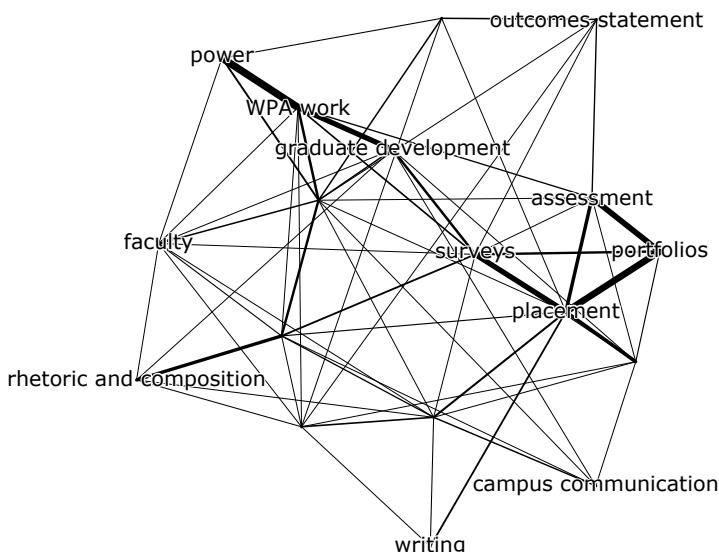


Figure 1. Network Model of WPA: *Writing Program Administration*

Other topics (nodes) in the network have weaker relationships with multiple topics, representing issues or ideas that are broadly relevant in the journal. The topics WRITING and RHETORIC AND COMPOSITION reach across the network, as does CAMPUS COMMUNICATION. I would argue that these broadly applicable topics illustrate something about the nature of this journal: most discussions of writing program administration can (and do) engage not only the theoretical and/or pedagogical issues around students and writing but also the *campuses* and *places* in which these issues are practically realized.

Visualizing the topic model as a network suggests that there are two issues across time—two strong clusters of topics—that are distinct areas of inquiry within the journal: writing assessment as it exists beyond classrooms and writing program administration itself. Although my study cannot claim that these areas of inquiry are exclusive to the journal, it does reveal that they are cohesive conversations in the journal. The model fur-

ther reveals that disciplinary knowledge (writing and rhetoric) and institutional context (campuses and policies) are broadly relevant, perhaps reinforcing the claim that writing program administration necessarily calls upon disciplinary knowledge and institutional, administrative skill.

### MAPPING TOPICS ACROSS TIME

I have offered answers to questions about the nature and province of WPA scholarship based on an analysis of the entire corpus, and here I turn to the question of how the scholarship has changed across forty years. My historical analysis first reveals that some topics emerged later in the history of the journal and have become increasingly prominent over time. For example, PRACTICES accounted for less than 1% of topics until 1995, after which it sometimes accounted for nearly 7% (see figure 2).

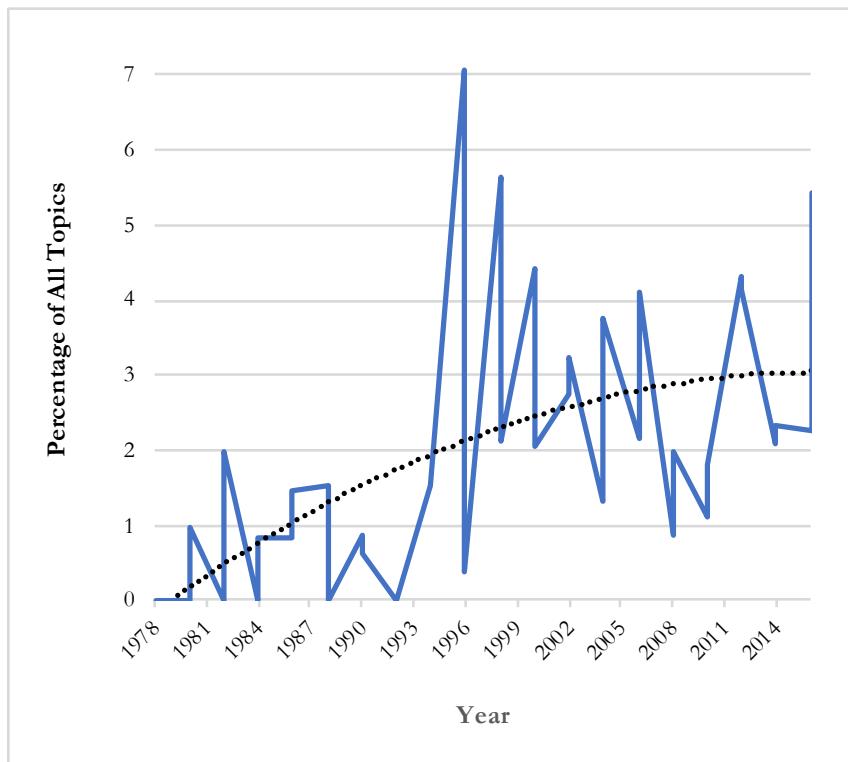


Figure 2. PRACTICES as a Percentage of All Topics<sup>3</sup>

The related concept of reflection emerged in composition scholarship around that time, and the topic model suggests that authors in this journal

quickly adopted that concept. Other topics that emerged later and continue to increase in prominence are SOCIAL DISCOURSE (began to increase in 1993), GRADUATE DEVELOPMENT (1996), SECOND LANGUAGE (2001), COMMUNITY LEARNING (2001), OUTCOMES (2007), KNOWLEDGE (2013), and RESEARCH STUDIES (2016).

Other topics decreased in frequency over time, but these declines were generally not as dramatic as the increases described above. The topic that declined most was ENGLISH DEPARTMENTS, which accounted for 7–12% of topics before 1995 and 0–7% after 1995 (see figure 3). These topics also continue to decrease over time: FACULTY, PAPERS, SECTIONS AND SEMESTERS, TEACHER TRAINING, and WRITING CENTERS.

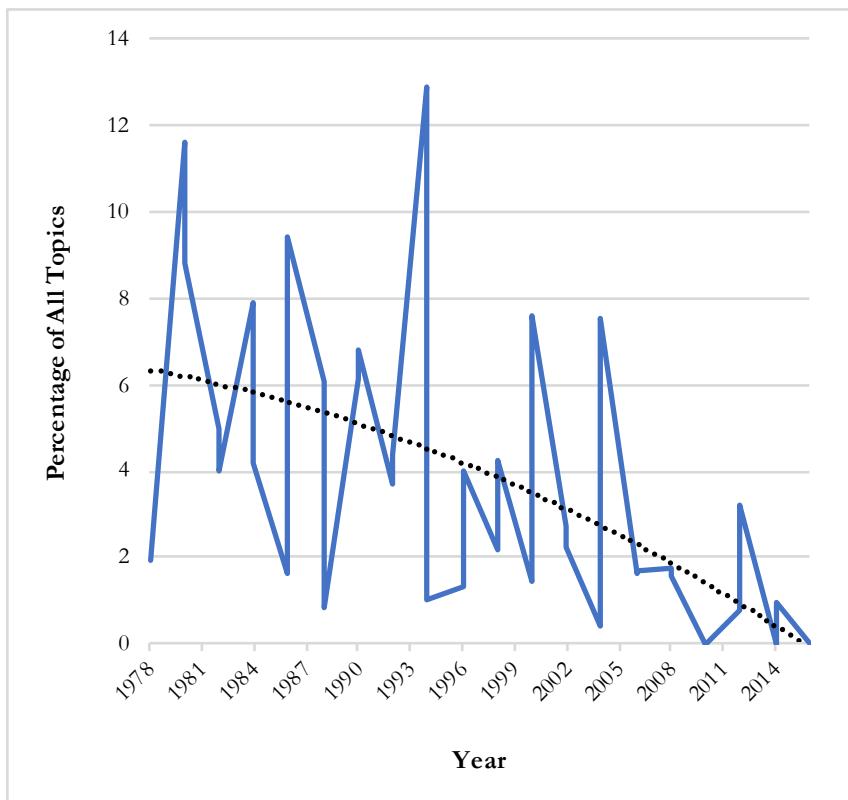


Figure 3. ENGLISH DEPARTMENTS as a Percentage of All Topics

These two trends offer insight into the development of the journal, revealing the years when particular ideas were most relevant. Although any historical arguments are limited by the nature of a topic model, at least one observation based on these trends is warranted: the topics that entered the

journal later and continue to increase are pedagogical or theoretical, while the topics that decreased are largely managerial and institutional.

Many topics increased and then decreased over time, and the model reveals when a particular topic was most prominent in the journal. For example, INSTITUTIONAL STRUCTURES peaked in the nineties, after which it decreased to its lowest level at the present (see figure 4). Other topics following this trend include RHETORIC AND COMPOSITION (which peaked in 1990), WAC (1991), PLACEMENT (1992), PORTFOLIOS (1996), POWER (2001), CAMPUS COMMUNICATION (2001), COURSES (2004), CURRICULAR CHANGE (2004), and WPA WORK (2005). It is again important to note that the amplitude of many trend lines is not very high, with percentages varying only three or four points over time. Topics that were once present in the journal are likely to persist at some level.

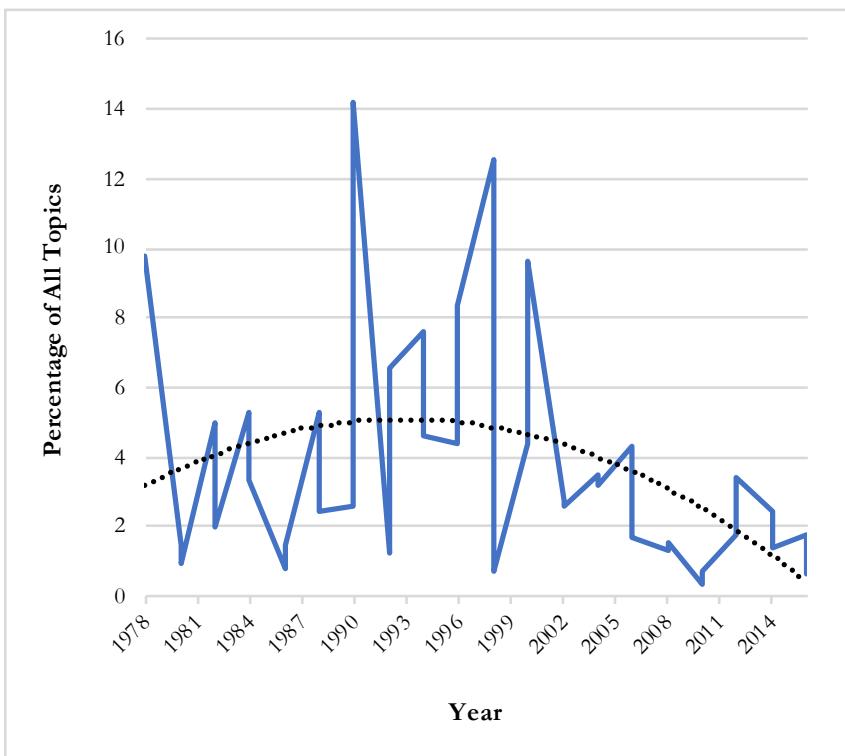


Figure 4. INSTITUTIONAL STRUCTURES as a Percentage of All Topics

Finally, some topics remained consistently prominent over time, with flat or undulating trend lines. These topics include ASSESSMENT, COLLEGE AND HIGH SCHOOL, INFORMATION, INSTRUCTOR DEVELOPMENT, OUTCOMES

STATEMENT, READING, STUDENTS, and WRITING. One reason these topics seem consistent may be the nature of the topic model. For example, INFORMATION includes what are perhaps two separate topics, one of which would certainly change over time: *information* in the context of source use and *information* in the context of online technology. Yet some topics may be truly consistent over time. For example, WRITING and OUTCOMES STATEMENT, which are highly connected nodes in the network model, could be consistently prominent because WRITING represents the practice in which WPAs are fundamentally invested and because OUTCOMES STATEMENT represents the administrative structures around that practice. And although the prominence of pedagogical topics has shifted over time, STUDENTS has also remained consistently prominent; *student(s)* is the most frequent noun in the journal, and its presence suggests that no trends have rendered students more or less prominent.

### THE SCOPE AND ALLEGIANCES OF WPA SCHOLARSHIP

Although any conclusions are necessarily constrained by the nature of topic modeling, I will end with three claims about the nature and province of WPA scholarship. First, the scope of the journal has not extended beyond academia in the way Bruffee and later editors hoped. Bruffee listed government relations and public relations as potential topics (8), subsequent editorial guidelines called for articles on the status of writing programs outside academic contexts, and the current guidelines include “outreach and advocacy.” However, these public issues have not yet been frequent enough to constitute topics. This body of WPA scholarship does not look as far as the public sphere, but it does look beyond individual classrooms. Nearly half of the topics in the model represent institutional issues and administrative issues specific to writing. When *WPA* authors write about assessment—a cohesive area of inquiry—they discuss *local assessments* and *institutional values*, *portfolio readers* and *placement tests*; when they write about writing curricula, they discuss *curricular models*, *standards*, and *policy documents*. Second, authors in this journal indeed write about writing program administration itself, but these discussions are less frequent and less recent than Hesse suggests (136). The cluster of *WPA WORK*, *GRADUATE PREPARATION*, and *POWER* reveals that WPA work is a distinct area of interest, encompassing *intellectual work*, *leadership* and *agency*, and *mentoring*. Scholarly discussions of administration have been present throughout the history of the journal (*WPA WORK* has been consistently prominent since the late eighties), and while this cluster of topics has become more prominent over time, it has constituted only 6–16% of topics during the last five years.

Finally, forty years after writing program administration established itself apart from the field of rhetoric and composition, our scholarship remains highly connected to composition theory and pedagogy. If our scholarly community has strayed from its fundamental allegiances to writing and students, as Hesse claims (138), this shift is not yet evident in the journal. The topics representing rhetoric and composition (PRACTICES, RHETORIC AND COMPOSITION, KNOWLEDGE, and RESEARCH) constitute an average of ten percent of topics over time and have actually increased over the last two decades. And a number of topics—many of which are broadly connected across the network—address writing and specific pedagogical issues: STUDENTS, COMMUNITY LEARNING, SECOND LANGUAGE, READING, and WRITING. Taken together, these topics constitute an average of fifteen percent of all topics, and they have also become slightly more prominent over time. Across forty years, the WPA scholarship published in this journal has developed both by looking outward to institutional and programmatic issues and by looking inward to writing program administration itself, and it has done so while retaining its connections to writing and pedagogy.

## NOTES

1. The LDA algorithm produces as many topics as it is asked to produce, and after testing several values, I found that forty offered a good combination of specificity and coherence.
2. The network model included in the print journal is an abridged version of the full model, which is available in the archived (PDF) issue and online: <http://calvin.edu/directory/people/kristine-johnson>.
3. The trendlines in figures 2–4 are 2nd order polynomial trendlines.

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