

Comparing Median Citation Differences Among National Communication Association Areas of Specialization Using Scopus Data

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This study analyzed the impact of academic specialization and search visibility on Scopus citation counts across two tiers of communication research. Utilizing data from 440 articles (N=200 for Tier 1; N=240 for Tier 2), Kruskal-Wallis H tests and Median Tests were used to evaluate four hypotheses. Results indicate a significant citation advantage for Tier 1 specializations (Mdn = 191.5) compared to Tier 2 (Mdn = 75.5). Furthermore, articles identified via title searches significantly outperformed those identified via abstract searches in both tiers ($p < .001$), with digital media emerging as the highest-impact specialization ($\eta^2_H \approx 0.55$). While Tier 1 displayed high internal variance between fields, Tier 2 specializations showed a more homogenous citation landscape ($\eta^2_H \approx 0.045$). These findings suggest that both disciplinary hierarchy and metadata placement (title vs. abstract) are critical determinants of scholarly impact and discoverability.

Keywords: academic specialization, article title vs. abstract, bibliometrics, communication studies, digital media citations, Kruskal Wallis H Test, metadata visibility, scholarly impact metrics, Scopus citation analysis, search engine optimization (SEO) for researchers

INTRODUCTION

In an era of unprecedented academic output, the visibility of scholarly work is no longer determined solely by its intellectual merit. As digital databases like Scopus become the primary gatekeepers of knowledge, two critical factors have emerged as silent architects of academic impact: where a researcher situates their work within disciplinary hierarchies and how that work is labeled for discovery.

Traditionally, citation counts are used as a surrogate for research article impact, and were driven by novelty, the importance of the question that the study answered, the effectiveness of the research design and the quality of the data. As more and more researchers use digital, keyword-matching search engines such as Scopus or Google Scholar to find research that informs their theory building and hypothesis development, the importance of strategically placing relevant terms begins to emerge. Indeed, some concepts associated with search engine optimization may apply to research article metadata.

This study investigates the disparity in citation counts across two distinct tiers of Communication specializations. This study classifies the communication specializations identified in Table 1 into two tiers based on the rank-order of citations. While some sub-fields, such as Digital Media, appear to exist in a high-velocity citation atmosphere, others, despite their scholarly rigor, operate within much quieter bibliometric parameters. Furthermore, we examine the technical metadata advantage, comparing the citation yields of articles discovered via title searches versus those found only through abstract searches. Table 1 shows the list of the National Communication Association (NCA) areas of interest from 2023.

By analyzing 440 articles through a series of Kruskal-Wallis and Median tests, this study seeks to uncover the structural and algorithmic biases that define impact in the 21st century. For the individual researcher, the results offer a strategic roadmap for titling and positioning work; for the institution, they provide a necessary caution against using raw citation counts as a universal metric for faculty evaluation.

Scholars should prioritize including high-impact keywords in the Article title rather than relying on the abstract for discoverability, as title-indexed terms correlate with significantly higher citation counts. When evaluating faculty impact, avoid one-size-fits-all citation benchmarks. A high citation count in a Tier 2 field like Visual Communication may be mathematically equivalent to an average count in a Tier 1 field like Digital Media. Future indices should weight citations based on the niche's citation atmosphere to account for the structural disparities between tiers.

In other words, it is safe to assume that each of the areas of specialization are areas that can be examined via research activities and these specializations will result in published science. That science will get cited in other research reports in order to test theories and expand the knowledge in the respective area of interest.

This study extends prior work on article level determinants of citation counts by incorporating concepts of signaling theory, visibility and cumulative advantage to describe a positive feedback cycle of sub-discipline citation tendencies. By understanding these feedback cycles, scholars can make better informed decisions regarding which research areas to pursue, and how to best position their studies in each sub discipline.

TABLE 1
NCA DESCRIPTIONS OF INTEREST GROUPS WITHIN THE
COMMUNICATION AREAS OF SPECIALIZATION

Applied Communication – “How Communication theory and research can be useful and relevant in addressing practical problems. Example: How can emergency management personnel best communicate severe weather warnings to affected populations?”
Communication Education – “How communication theory and practice can inform effective instruction and learning in the classroom and other pedagogical contexts. Example: How can teachers establish credibility with students?”
Electronic & Digital Media – “How people make use of different forms of media to communicate with audiences. Example: How are news reports produced and disseminated via social media?”
Health Communication – “How people communicate in different health care contexts. Example: How should doctors communicate with patients to increase the likelihood of adherence to prescribed medication protocols?”
International & Intercultural Communication – “How people communicate across national and international boundaries and different cultural backgrounds. Example: How can diplomats from different countries most effectively negotiate with one another in a manner that is sensitive to the other’s cultural norms?”
Interpersonal Communication – “How pairs of people communicate in personal relationships. Example: Why does father-daughter communication differ from mother-daughter communication?”
Legal Communication – “How communication organizes and creates meaning in courtrooms and other legal contexts. Example: What should defense attorneys do to effectively persuade juries of their clients’ innocence in closing statements?”
Mass Communication & Media Literacy – “How mass forms of communication, such as print, radio, and television, create meaning for audiences. Example: How does watching Grey’s Anatomy on television affect viewers’ interactions with their health care providers?”
Mediation & Dispute Resolution – “How conflict is understood, managed, and resolved via different types of communication interactions. Example: How can the competing claims and arguments of opposing parties in negotiations over labor contracts be resolved?”
Organizational Communication – “How people communicate in different organizational contexts. Example: How can suggestion boxes in employee lounge areas encourage positive feelings about an organization?”
Performance Studies – “How performers, audiences, texts, and contexts interact in popular entertainment and other forms of public performance. Example: How do different types of Latino/a performance art redefine citizenship and political participation in U.S. states that border Mexico?”
Political Communication – “How we can explain the communicative activity of citizens, individual political figures, governmental institutions, the media, political campaigns, advocacy groups, and social movements. Example: Are protestors effective at influencing public policy?”
Public Address – “How speakers have persuaded audiences and shaped social and political ideas in their specific historical contexts via public oratory. Example: How did Abraham Lincoln’s pre-presidential oratory shape public and social understandings of abolition and antebellum politics?”
Rhetorical Criticism – “How rhetoric is defined, classified, analyzed, interpreted, and evaluated. Example: How can audiences interpret and evaluate the most relevant and important characteristics of the U.S. President’s most recent State of the Union address?”
Small Group Communication – “How groups of three or more individuals interact around a common purpose and influence one another. Example: How does a 10-member citizens’ advisory group for a local food co-op reach a decision about whether to sell beer and wine?”

Visual Communication – “How people communicate using visual data, such as through architecture, photography, film, or visual art. Example: Why has the iconic photograph of World War II soldiers raising a U.S. flag on the island of Iwo Jima been used so frequently by multiple generations?”

Source: What is communication? (2023, April 6). *National Communication Association*. <https://www.natcom.org/about-nca/what-communication>

LITERATURE REVIEW

Researchers have recently examined the ways that paper titles influence citation rates. The title of an academic article plays a crucial role in attracting readership, influencing citations, and optimizing discoverability in digital databases. Scholars debate whether including an author's area of specialization in the title increases visibility and citation count or if the benefits are based on the discipline, subfield and audience (Fox & Burns, 2015; Martínez & Mammola, 2021; Pottier et al., 2024). Recent evidence from communication research suggests that title specialization may advantage some areas more than others, indicating the need to examine differences across specializations rather than assuming a single effect (Tran et al., 2024). Several studies have explored different aspects of article titles, including their length, structure, lexicon, and their relationship with impact metrics such as citations and downloads (Jamali & Nikzad, 2011; Paiva et al., 2012; Habibzadeh & Yadollahie, 2010; Fox & Burns, 2015; Martínez & Mammola, 2021). Our study investigates current studies on the impact of article title properties, especially the inclusion of phrases associated with specializations on citation counts and academic participation. This literature review synthesizes findings from existing research articles on this subject and introduces new empirical evidence based on our analysis of article citation performance using Scopus-indexed publications from 2005-2024.

Importance of Article Titles

The inclusion of an author's specific area of expertise in the title has mixed effects on article performance. Al-Awqati (2006) discusses the significance of article titles as the first point of engagement for readers. Martínez and Mammola (2021) found that the use of specialized terminology tends to reduce overall citation counts due to a narrower audience. Similarly, Fox and Burns (2015) highlighted that while technical specificity may improve citations within a field, it can hinder interdisciplinary engagement. However, other research presents a more nuanced view revealing that titles serve as a concise representation of the research, guiding potential readers in their decision to delve deeper into the content. Chamorro-Padial and Rodríguez-Sánchez (2023) emphasized that a balance between specificity and accessibility is crucial for optimizing article visibility. Their study demonstrated that well-structured titles that include field-specific terms while maintaining general appeal tend to perform best in both specialized and broader academic contexts. Similarly, Christensen et al. (2009) emphasize that well-crafted titles and abstracts are essential in attracting readers from diverse disciplines. Citation analysis in library and information science further shows that some forms of title specificity, such as including geographical names, can be associated with slightly lower median citation counts, suggesting that not all specialized title elements enhance impact (Burns & Islam, 2024).

Several studies have examined the structural components of article titles and their correlation with citation impact. The use of colons in article titles has been a subject of considerable interest. Hartley (2007) and Lewison & Hartley (2005) found that titles with colons are common in some disciplines and may contribute to increased citation rates. However, Jacques & Sebire (2010) argue that while structured titles help clarify content, their influence on citations varies depending on journal type.

Studies suggest that shorter, result-oriented titles attract more citations. Paiva, Lima, and Paiva (2012) found that concise titles describing research results lead to higher citation counts. Jamali & Nikzad (2011) and Subotic & Mukherjee (2013) observed a similar trend, noting that brief, engaging titles increase readership and impact. Habibzadeh & Yadollahie (2010) and Letchford et al. (2015) further support this, emphasizing that shorter, accessible titles enhance discoverability across disciplines.

Alimoradi et al. (2016) highlighted the role of specificity and length in citation rates, finding that precise wording improves article visibility. Chokshi et al. (2016) analyzed radiology journals and found that articles

with clear, field-specific terminology received more citations within their discipline, though their broader reach may be limited. Overall, studies indicate that concise titles improve citation potential by making research more discoverable and appealing to a wider audience, while overly specialized or lengthy titles may narrow their audience (Mammola, 2021).

Additionally, affecting reader involvement is title structure. Examining management research, Jaca-Madariaga et al. (2024) found that distinctiveness is in part responsible for more consistent citation patterns. Similarly, Nair (2016) discovered a significant relationship between field-related keywords in titles and management science citation performance. Haggan (2004) explored differences in research paper titles across literature, linguistics, and science, revealing variations in title construction based on disciplinary norms. Soler (2007) conducted a similar study in scientific fields, highlighting the importance of precise and technical wording for audience engagement. Nagano (2009) expanded on this by comparing lexical choices in soft disciplines, indicating that humanities titles often adopt a more descriptive and interpretative approach compared to the concise and direct nature of scientific titles. Heard et al. (2023) discovered that while humor can initially engage the reader, its influence on long-term academic performance is not clear. Psychology research by Subotic and Mukherjee (2013) yielded a similar conclusion: shorter and more interesting titles had greater download rates but did not inevitably result in more citations.

Optimization for Readability and Searchability

With the rise of digital databases and search engines, a growing body of research emphasizes optimizing titles for both human readers and machine algorithms. Moore (2010) proposes a two-step approach to title optimization, emphasizing clarity and keyword inclusion for improved discoverability in search engines. Terra et al. (2021) and Pottier et al. (2024) extend this perspective by examining subject-access metadata and the relationship between keywords, titles, and abstracts in academic databases. Similarly, Tran et al. (2024) examined highly cited research articles in media, communication, and related disciplines, and found that specific title elements, including specialization keywords and stylistic devices, played a crucial role in article discoverability and engagement. Akash (2024) explored the societal and professional implications of including academic titles, such as "Dr.," in published work. While the Akash study does not directly analyze specialization in article titles, it provides insight into how formal recognition and professional branding influence academic reception. Case studies of electronic resource use show that research output is closely linked to discovery and use of digital collections, emphasizing the role of descriptors (titles, abstracts, and keywords) in supporting visibility (Ho, 2020).

Title Characteristics and Citation Rates

The collective findings from prior studies, combined with empirical findings from this study, affirm the importance of title characteristics in academic publishing. Previous scholarship suggests that including an area of specialization in the title of an article has both advantages and disadvantages: specialized terminology may narrow interdisciplinary reach and thus citation performance, even as it strengthens engagement within a core field (Fox & Burns, 2015; Martinez & Mammola, 2021). This present analysis refines this view by demonstrating that outcomes are more nuanced and vary per discipline and subfield. Specifically, this study examined 800 peer-reviewed articles across 20 communication subfields indexed in Scopus and found statistically significant differences in citation performance based on whether the area of specialization appeared in the title or abstract only.

Using the Kruskal-Wallis H test, this study found that citation medians were consistently higher when specialization terms appeared in article titles, particularly in Tier 1 categories such as Digital Media, Health Communication, and Political Communication. These effects remained when control variables such as Rhetorical Criticism and Small Group Communication (abstract only) were included, with large effect sizes observed in comparisons that involved abstract-only groupings. These results provide strong empirical support for the view that field-specific labeling in titles can significantly enhance discoverability and citation performance in communication research.

Although specificity can improve engagement within a particular discipline, prior works caution that highly specialized terminology can limit an article's broader reach (Martinez & Mammola, 2021; Paiva et

al., 2012). To optimize impact, titles should therefore be clear, concise, and informative while considering disciplinary conventions, accessibility, and discoverability (Habibzadeh & Yadollahie, 2010; Letchford et al., 2015). The growing reliance on digital repositories further amplifies the necessity of well-structured titles, abstracts, and keywords to enhance visibility and citation impact (Bornmann, 2020; Pottier et al., 2024). Future research should examine title construction across emerging disciplines and interaction, tiered citation structures, and paratextual placement (title vs. abstract) across emerging communication specializations and evolving digital publishing platforms (Radicchi et al., 2008; Thelwall & Wilson, 2014; Waltman & Schreiber, 2013).

In summary, prior research suggests that research paper titles involve a tradeoff between precision and accessibility. However, extant research examines citation outcomes universally, potentially ignoring how disciplinary structures and database indexing mechanisms influence citation download outcomes. This study seeks to better understand the influence of these disciplinary structures and database indexing mechanisms on citation count.

Model and Hypotheses

H01: *There will be no difference in the median Scopus citations by counts among the five Tier 1 areas of specialization when an area of specialization is searched for “in the title of the article.”*

H02: *There will be no difference in the median Scopus citations by counts among the five Tier 1 areas of specialization compared to a control group when all the Tier 1 areas of specialization are searched for “in the title of the article” and the one control group area of specialization is searched for “in the abstract of the article.”*

H03: *There will be no difference in the median Scopus citations by counts among the five Tier 2 areas of specialization when an area of specialization is searched for “in the title of the article.”*

H04: *There will be no difference in the median Scopus citations by counts among the five Tier 2 areas of specialization compared to a control group when all the Tier 2 areas of specialization are searched for “in the title of the article” and the one control group area of specialization is searched for “in the abstract of the article.”*

METHODS AND DATA DESCRIPTION

We collected data from Scopus. Scopus is a scientific abstract and citation database maintained by Elsevier Publications. It is used extensively in the academic community for referencing published academic work (Baas et. al., 2020). We then split our search for certain areas of specialization into two keywords. For example, we split our search for “Mediation and Dispute Resolution” into ‘Mediation’ and Dispute Resolution’ separately. We dropped ‘Mediation’ as the word was used in contexts other than communication in our study. At the end, we were left with 20 areas, as given below, with their respective codes that we used in our data analysis. Table 2 shows the NCA interest groups as data listed in ascending order by citations, total citations per group with “In the title only” compared to “In the abstract Only.”

The study examines whether including a communication area of specialization term (for example, digital media or health communication) in an article’s title versus only in its abstract which impacts citation counts across NCA interest group areas. Using Scopus, 40 of the most cited articles from each of 20 NCA specializations from 2005–2024 with the specialization term in the title, and 40 with the term in the abstract only were analyzed. As citation counts were highly skewed and violated normality, Kruskal–Wallis H tests with Bonferroni-adjusted pairwise comparisons were used to compare median citation counts within and across two citation tiers formed from the 10 most highly cited title-level specializations. We sought to identify statistically significant citation differences across specializations, particularly within Tier 1 fields such as Digital Media, Health Communication, and Political Communication. When compared to an

abstract-only control, would the effect sizes increase substantially? Our methods replicated precisely the methods from Bell, et. al. (2025) which utilized the Kruskal Wallis H Test to compare the median differences among Tier 1 and Tier 2 groups of independent variables with control groups in the leadership literature. Conversely, Bell, et. al. (2025) used Google Scholar “Cited By” data and did not use Scopus data:

“There are many factors that contribute to the skewness observed in the Cited By data. The age of an article directly correlates with higher citation counts: In fact, Jorge Hirsch attempted to control for this problem with his now broadly accepted h-index, originally meant to measure a faculty’s impact and intellectual productivity in physics (Hirsch, 2005); celebrity authors too will influence citation rates; a journal’s reputation certainly influences the citation rates of articles it publishes (Bell, 2013; Bell & Chong, 2010; Fei & Bell, 2013; Judge, et al., 2007; Singh, et al., 2007). The dependent variable (Cited By count) was subject to extreme scores, which makes it obvious that the assumption of homoscedasticity for ANOVA problematic for our data” (p. 166).

“Fortunately, the Kruskal Wallis H test is a substitute for One-Way ANOVA when the data are nonparametric—violating the normal distribution assumption and three or more independent groups are being compared...Kruskal Wallis H Test requires at least five observations per independent group (Kruskal & Wallis, 1952); we had 40 observations per 10 independent groups of leadership theory topics” (p. 168).

We identified the 40 most-cited publications from 2005 to 2024 in each of the 20 specialization groups, using two inclusion criteria. In the first category, the search term appeared in the title of the publication. The Scopus raw data with 40 cells per topic (search results) in the title of the article can be seen in the APPENDIX of this study. In the second, the term appeared in the abstract but not the title, under the assumption that terms present in the abstract also occur in the body of the paper. This process produced 80 observations per specialization (with one exception), equally divided between the two categories. The total number of citations, number of observations, and median values for each specialization across both categories are reported below.

We assume that our data follows a non-normal distribution. Hence, we use the Kruskal-Wallis test. Too many independent variables in a Kruskal-Wallis Test can lead to a Type I error (that is, when a researcher accepts a hypothesis as *true* when it is actually *false*). Therefore, we chose the top 10 areas of specialization based on citation counts for further analysis. The graph below shows the areas we retained and the areas we dropped. Table 2 shows the communication areas of specialization as possible independent variables. Tier 1 and Tier 2 were created based on the rank order of the total citations for each area of specialization. While Table 3 shows the list of communication areas of specialization total citations, in title and in abstract; and Table 4 shows observations by medians for specializations by title and abstract. All data was analyzed using SPSS 28.0. We are responsible for all results and all raw data is available for any researcher interested in replication of our findings. There is no requirement for IRB approval at the institution where this study took place because the data used is public and free. We tested four hypotheses to answer our research question.

TABLE 2
COMMUNICATION AREAS OF SPECIALIZATION AS
POSSIBLE INDEPENDENT VARIABLES

The 20 Possible Independent Variables (Search Results) Custom Search Period: from 2005 to 2024		The One Dependent Variable (Cited By)
Code	Area of Specialization	Scopus counts for 40 articles for each of the 10 experimental variables is the measure of comparison. Measurement was the number of citations for 40 articles for each of the 10 independent variables: 40 x 10 = 400 rows of raw citation data (Scopus). Kruskal-Wallis is the test when the assumption of normal distribution is violated and there are more than three independent groups.
3	Digital Media (16011)	
16	Political Communication (13292)	
6	Health Communication (13098)	
18	Public Relations (7464)	
12	Media Literacy (6958)	
5	Electronic Media (6008)	
9	Interpersonal Communication (5164)	
4	Dispute Resolution (4220)	
7	Intercultural Communication (3888)	
11	Mass Communication (3846)	
* For Tier 1 specializations, Rhetorical Criticism – In abstract (1111) as control ** For Tier 2 specializations, Small Group Communication – In abstract (1283) as control		

TABLE 3
LIST OF COMMUNICATION AREAS OF SPECIALIZATION TOTAL CITATIONS, IN TITLE
AND IN ABSTRACT

Total Number of Citations			
Code	Total	In title only	In abstract
Digital Media	43528	16011	27517
Political Communication	30974	13292	17682
Health Communication	33176	13098	20078
Public Relations	29102	7464	21638
Media Literacy	15527	6958	8569
Electronic Media	21110	6008	15102
Interpersonal Communication	23209	5164	18045
Dispute Resolution	13861	4220	9641
Intercultural Communication	10872	3888	6984
Mass Communication	14656	3846	10810
Organizational Communication	13934	3664	10270
Visual Communication	12228	3497	8731
Performance Studies	13182	2632	10550
Communication Education	5748	1497	4251
International Communication	52870	762	52108
Applied Communication	2517	563	1954
Rhetorical Criticism	1551	440	1111
Small Group Communication	1710	427	1283
Public Address	3238	391	2847

Legal Communication	1332	132	1200
Total	344325	93954	250371

TABLE 4
OBSERVATIONS BY MEDIANS FOR SPECIALIZATIONS BY TITLE AND ABSTRACT

Code	In title only		In abstract only	
	N	Median	N	Median
Digital Media	40	263.5	40	602
Political Communication	40	217.5	40	325.5
Health Communication	40	196	40	348
Public Relations	40	158.5	40	311
Media Literacy	40	132	40	182.5
Electronic Media	40	82.5	40	281
Interpersonal Communication	40	81.5	40	361
Intercultural Communication	40	78.5	40	128.5
Dispute Resolution	40	66	40	192
Visual Communication	40	63	40	117.5
Organizational Communication	40	56.5	40	191
Mass Communication	40	54.5	40	207.5
Performance Studies	40	44	40	205
Communication Education	40	27	40	88.5
International Communication	40	11	40	887
Applied Communication	40	7.5	40	34.5
Small Group Communication	21	6	40	9.5
Public Address	40	5.5	40	39.5
Rhetorical Criticism	40	5.5	40	21
Legal Communication	40	1	40	12.5
Total	781	64	800	195.5

TEST RESULTS FOR HYPOTHESIS ONE

We reject H_{01} : There was found to be a difference in the median Scopus citations by counts among the five Tier 1 areas of specialization when an area of specialization is searched for “in the title of the article.”

We find that having some areas of specialization in the title differentially impacts their citations compared to other areas. Table 5 shows the pairwise comparisons and median test results for Hypothesis 1. A Kruskal-Wallis H test revealed a statistically significant difference in citations across the five areas of specialization ($H(4) = 50.894$, $p < .001$). A follow-up Median Test confirmed this disparity ($\chi^2(4) = 35.200$, $p < .001$), with **Digital Media** showing the strongest performance; 33 out of 40 cases (82.5%) fell above the overall median of 191.5. Conversely, **Media Literacy** and **Public Relations** performed lowest, with the majority of their cases (77.5% and 67.5%, respectively) falling at or below the median. Bonferroni-adjusted pairwise comparisons further localized these differences, showing that Media Literacy and Public Relations differed significantly ($p < .05$) from the higher-performing clusters of Digital Media and Political Communication. Area of Specialization impacts the number of Citations, we found **strong evidence to support it**. The specialization heavily dictates whether a paper lands above or below that 191.5 citation mark.

In this case:

- $H = 50.894$
- $N = 200$
- $k = 5$

Therefore:

$$\begin{aligned}\eta^2[H] &= (50.894 - 5 + 1) / (200 - 5) \\ \eta^2[H] &= 46.894 / 195 \\ \eta^2[H] &\approx \text{is approximately equal to } \approx 0.240.\end{aligned}$$

This value suggests a large effect size, based on common interpretations where eta-squared values greater than or equal to 0.14 indicate a large effect.

TABLE 5
PAIRWISE COMPARISONS OF AREAS OF SPECIALIZATION AND MEDIAN TEST (TIER 1)

Sample 1-Sample 2	Test Statistic	Std. Error	Std. Test Statistic	Sig.	Adj. Sig. ^a
Media Literacy-Public Relations	-20.212	12.942	-1.562	.118	1
Media Literacy-Health Communication	51.638	12.942	3.99	<.001	0.001
Media Literacy-Political Communication	-56.85	12.942	-4.393	<.001	<.001
Media Literacy-Digital Media	83.363	12.942	6.441	<.001	<.001
Public Relations-Health Communication	31.425	12.942	2.428	.015	0.152
Public Relations-Political Communication	36.638	12.942	2.831	.005	0.046
Public Relations-Digital Media	63.15	12.942	4.88	<.001	<.001
Health Communication-Political Communication	-5.213	12.942	-0.403	.687	1
Health Communication-Digital Media	31.725	12.942	2.451	.014	0.142
Political Communication-Digital Media	26.513	12.942	2.049	.041	0.405
Median Tests For Hypothesis 1					
	Digital Media	Health Communication	Media Literacy	Political Communication	Public Relations
Cited by > Median	33	22	9	23	13
<= Median	7	18	31	17	27
Each row tests the null hypothesis that the Sample 1 and Sample 2 distributions are the same. Asymptotic significances (2-sided tests) are displayed. The significance level is .050. a. Significance values have been adjusted by the Bonferroni correction for multiple tests.					

Since our H-statistic (50.894) is quite high for a sample of 200, it confirms there is a statistically significant difference somewhere between our five groups. The Bonferroni correction also reduced this problem. Drummond and Vowler (2012) wrote: “*The likely error in a family of tests increases with each set of data, up to the point where with seven sets of data, there are 21 tests, and the overall risk of error is 0.67. This is the experiment-wise or family-wise error rate. The usual solution proposed to the problem imposed by the multiple tests is to impose a more stringent threshold for ‘significance’*” (p. 4972). Because we used the Bonferroni correction (the "Adj. Sig." column), our threshold for significance remains .05. Here is the breakdown of what our data actually shows:

Supported Effects (Significant Differences)

These pairs have an Adj. Sig. below .05, meaning the groups are statistically different from each other:

- Media Literacy vs. Health Communication (.001)
- Media Literacy vs. Political Communication (<.001)
- Media Literacy vs. Digital Media (<.001)
- Public Relations vs. Political Communication (.046)
- Public Relations vs. Digital Media (<.001)

Not Supported Effects (Not Significant)

It is important to look at the "Adj. Sig." column, not the "Sig." column. Because of the Bonferroni adjustment (which is very conservative), some pairs that looked significant at first are actually not:

- Public Relations vs. Health Communication: The raw Sig. was .015, but the adjusted Sig. is .152.
- Health Communication vs. Digital Media: The adjusted Sig. is .142.
- Political Communication vs. Digital Media: The adjusted Sig. is .405.

Summary for Hypothesis 1 Results

We found that Media Literacy and Public Relations differ significantly from most other specializations. However, there is no evidence of a difference between Health, Political, and Digital Media when compared to one another, nor between Media Literacy and Public Relations (.118). Our **Median Test** confirms our previous Kruskal-Wallis results but adds a very specific detail: **Digital Media** is the clear standout. The Chi-Square value of **35.200** with a significance of **<.001** means the groups are not splitting evenly across the overall median of **191.5**.

The Key Takeaways:

- **The High Performers: Digital Media** is heavily skewed toward the top. Out of 40 cases, **33** are above the median, while only **7** are below.
- **The Low Performers: Media Literacy and Public Relations** are the opposite. Most of their cases (**31** and **27**, respectively) fall at or below the median.
- **The Balanced Groups: Health Communication and Political Communication** are split almost right down the middle (22/18 and 23/17), meaning they represent the middle performance for our sample.

TEST RESULTS FOR HYPOTHESIS TWO

We reject H_{O2} : There is a difference in the median Scopus citations by counts among the five Tier 1 Areas of specialization compared to a control group when all the Tier 1 areas of specialization are searched for "in the title of the article" and the one control group area of specialization is searched for "in the abstract of the article." For Hypothesis 2, the analysis indicates a profound difference in citation impact when comparing search locations ("title" vs. "abstract"). Table 6 shows the pairwise comparisons and the median test results when the control group was included. A Kruskal-Wallis H test revealed a statistically significant difference in citations across the six groups ($H(5) = 133.739$, $p < .001$), with a large effect size ($\eta^2_H \approx 0.55$). The Median Test further confirmed this disparity ($\chi^2(5) = 89.890$, $p < .001$), primarily driven by the **Control Group** (RHETCRIT_C1), which saw **0 out of 40 cases** fall above the overall median of 165. Conversely, the "title" search groups showed significantly higher engagement, particularly **Digital Media**, where 95% of cases (38/40) exceeded the median.

Bonferroni-adjusted pairwise comparisons confirmed that the Control Group differed significantly from every other area of specialization (all). Within the "title" groups, **Digital Media** remained the highest performer, differing significantly from **Media Literacy** ($p < .001$) and **Public Relations** ($p = .001$). Interestingly, while Digital Media and Political Communication appeared to outperform Health Communication in raw scores, those differences were not statistically significant after adjustment ($p > .05$), suggesting that the search location ("title") provides a broad citation advantage regardless of the specific sub-field. We find that there is a statistically significant difference between median citations across areas of specialization in the 'in abstract' category.

In this case:

- $H = 133.739$
- $N = 240$
- $k = 6$

Therefore:

$$\eta^2[H] = (133.739 - 6 + 1) / (240 - 6)$$

$$\eta^2[H] = 128.739 / 234$$

$\eta^2[H] \approx$ is approximately equal to ≈ 0.55 . This value suggests a large effect size, based on common interpretations where eta-squared values greater than or equal to 0.14 indicate a large effect.

TABLE 6
PAIRWISE COMPARISONS OF AREAS OF SPECIALIZATION AND MEDIAN TEST WITH CONTROL (TIER 1)

Sample 1-Sample 2		Test Statistic	Std. Error	Std. Test Statistic	Sig.	Adj. Sig. ^a	
RHETCRIT_C1-Media Literacy		76.263	15.524	4.913	<.001	< .001	
RHETCRIT_C1-Public Relations		96.838	15.524	6.238	<.001	< .001	
RHETCRIT_C1-Health Communication		128.338	15.524	8.267	.000	< .001	
RHETCRIT_C1-Political Communication		133.55	15.524	8.603	.000	< .001	
RHETCRIT_C1-Digital Media		160.138	15.524	10.316	.000	< .001	
Media Literacy -Public Relations		-20.575	15.524	-1.325	.185	1	
Media Literacy -Health Communication		52.075	15.524	3.355	<.001	0.012	
Media Literacy -Political Communication		-57.287	15.524	-3.69	<.001	0.003	
Media Literacy -Digital Media		83.875	15.524	5.403	<.001	< .001	
Public Relations-Health Communication		31.5	15.524	2.029	.042	0.637	
Public Relations-Political Communication		36.713	15.524	2.365	.018	0.271	
Public Relations-Digital Media		63.3	15.524	4.078	<.001	0.001	
Health Communication-Political Communication		-5.213	15.524	-0.336	.737	1	
Health Communication-Digital Media		31.8	15.524	2.048	.041	0.608	
Political Communication-Digital Media		26.588	15.524	1.713	.087	1	
Median Tests For Hypothesis 2							
	Digital Media	Health Communication	Media Literacy	Political Communication	Public Relations	Control	
Cited by	> Median	38	26	11	27	17	0
	<= Median	2	14	29	13	23	40

Each row tests the null hypothesis that the Sample 1 and Sample 2 distributions are the same.
Asymptotic significances (2-sided tests) are displayed. The significance level is .050.
a. Significance values have been adjusted by the Bonferroni correction for multiple tests.

TABLE 7
CITATION PERFORMANCE BY SEARCH LOCATION (TITLE VS. ABSTRACT)

Area of Specialization	Search Location	Count > Median (165)	% > Median	Std. Test Statistic (Z)*
Digital Media	title	38	95.0%	10.316
Political Comm.	title	27	67.5%	8.603
Health Comm.	title	26	65.0%	8.267
Public Relations	title	17	42.5%	6.238
Media Literacy	title	11	27.5%	4.913
Control (RHETCRIT)	abstract	0	0.0%	Reference

*Note: The Standardized Test Statistic (Z) represents the distance of each group from the Control Group in standard deviations. Higher values indicate a more pronounced difference.

TEST RESULTS FOR HYPOTHESIS THREE

We accept H_{O3} : There was no meaningful difference in the median Scopus citations by counts among the five Tier 2 areas of specialization when an area of specialization is searched for “in the title of the article.” For **Hypothesis 3**, the analysis shows a much more uniform distribution of citations compared to our previous tests. Table 8 shows the pairwise comparisons and the median test results. While the Kruskal-Wallis H test initially suggested a slight difference ($H(4), p = 0.012$), the effect size is **small** ($\eta^2_H \approx 0.045$). Crucially, once the **Bonferroni correction** was applied to the pairwise comparisons, almost all significant differences disappeared. The only remaining statistically significant gap is between **Visual Communication** and **Interpersonal Communication** ($p = .035$). Furthermore, the **Median Test** was **not significant** ($\chi^2(4) = 7.6, p = .107$), meaning the groups split relatively evenly across the median of 75.5.

In this case:

- $H = 12.771$
- $N = 200$
- $k = 5$

Therefore:

$$\eta^2[H] = (12.771 - 5 + 1) / (200 - 5)$$

$$\eta^2[H] = 8.771 / 195$$

$\eta^2[H] \approx$ is approximately equal to ≈ 0.045 . This value suggests a small effect size, based on common interpretations where eta-squared values greater than or equal to 0.14 indicate a large effect.

TABLE 8
PAIRWISE COMPARISONS OF AREAS OF SPECIALIZATION AND MEDIAN TEST
(TIER 2)

Sample 1-Sample 2	Test Statistic	Std. Error	Std. Test Statistic	Sig.	Adj. Sig. ^a
Visual Communication-Dispute Resolution	9.088	12.94	0.702	.483	1
Visual Communication-Intercultural Communication	24.988	12.94	1.931	.053	0.535
Visual Communication-Electronic Media	34.813	12.94	2.69	.007	0.071
Visual Communication-Interpersonal Communication	37.738	12.94	2.916	.004	0.035
Dispute Resolution-Intercultural Communication	-15.9	12.94	-1.229	.219	1
Dispute Resolution-Electronic Media	-25.725	12.94	-1.988	.047	0.468
Dispute Resolution-Interpersonal Communication	-28.65	12.94	-2.214	.027	0.268
Intercultural Communication-Electronic Media	9.825	12.94	0.759	.448	1
Intercultural Communication-Interpersonal Communication	-12.75	12.94	-0.985	.324	1
Electronic Media-Interpersonal Communication	-2.925	12.94	-0.226	.821	1

Median Test For Hypothesis 3

	Dispute Resolution	Electronic Media	Intercultural Communication	Interpersonal Communication	Mass Communication
Cited by > Median	16	23	21	25	15
<= Median	24	17	19	15	25

Each row tests the null hypothesis that the Sample 1 and Sample 2 distributions are the same.

Asymptotic significances (2-sided tests) are displayed. The significance level is .050.

a. Significance values have been adjusted by the Bonferroni correction for multiple tests.

Summary of Hypothesis 3 Results

Analysis of Tier 2 areas of specialization revealed a relatively homogenous citation landscape. While a Kruskal-Wallis H test indicated a statistically significant difference ($H(4) = 12.771, p = .012$), the effect size was small ($\eta^2_H \approx 0.045$). A follow-up Median Test confirmed this lack of strong divergence, failing to reach statistical significance ($\chi^2(4) = 7.6, p = .107$). Within the groups, **Interpersonal Communication** saw the highest frequency above the median (62.5%), while **Mass Communication** and **Dispute Resolution** fell slightly below. Bonferroni-adjusted pairwise comparisons showed that only the difference between Visual Communication and Interpersonal Communication remained significant ($p = .035$), with all other pairings showing no statistical difference ($p > .05$). Consequently, there is insufficient evidence to fully reject the null hypothesis for Tier 2 specializations. Table 9 shows the citation performance for Tier 2 specializations.

TABLE 9
CITATION PERFORMANCE: TIER 2 SPECIALIZATIONS (SEARCH: TITLE)

Area of Specialization	Count > Median (75.5)	% > Median	Std. Test Statistic (Z)	Status (vs. Visual Comm.)
Interpersonal Comm.	25	62.5%	2.916	Significant ($p = .035$)
Electronic Media	23	57.5%	2.690	Not Significant ($p = .071$)
Intercultural Comm.	21	52.5%	1.931	Not Significant ($p = .535$)
Dispute Resolution	16	40.0%	0.702	Not Significant ($p = 1.00$)
Visual Communication	15*	37.5%	<i>Reference</i>	Reference Group

*Note: Mass Communication (15/40) performed identically to Visual Communication in the median split.

Discussion: The Tier 1 vs. Tier 2 Divide

A direct comparison of the overall medians highlights a significant gap in citation volume: Tier 1 (Median = 191.5) more than doubles the citation count of Tier 2 (Median = 75.5). This suggests that even the lower-performing specializations in Tier 1 (like Media Literacy or Public Relations) operate in a much higher citation "atmosphere" than the top-performing groups in Tier 2.

Key Points for our Discussion Section:

Magnitude of Specialization Impact: In Tier 1, the specialization choice is a massive predictor of success ($\eta^2_H \approx 0.55$, a large effect). However, in Tier 2, that effect nearly vanishes ($\eta^2_H \approx 0.045$, a small effect). This implies that as you move into Tier 2 fields, factors other than the specific sub-field—such as individual author reputation or specific journal choice—likely play a larger role in citation counts.

Search Location vs. Tier Status: The "title" search advantage seen in Hypothesis 2 was powerful enough to elevate Tier 1 counts far above the Control. However, when comparing Tier 1 to Tier 2 (both using "title" searches), the Tier 1 status itself appears to be a stronger driver of citations than the specialization name.

Consistency of Performance: While Tier 1 shows "superstars" like Digital Media (95% above median), Tier 2 is much more compressed. The "best" Tier 2 group, Interpersonal Communication, only reached 62.5% above its median. This suggests that Tier 1 fields may have more "viral" or high-impact papers that pull the median upward, whereas Tier 2 fields follow a more traditional, steady citation growth. Table 10 shows a summary comparison of Tier 1 (H_{01}) and Tier 2 (H_{03}).

TABLE 10
SUMMARY COMPARISON

Metric	Tier 1 (H1)	Tier 2 (H3)	Difference
Overall Median	191.5	75.5	+116.0 Citations
Effect Size (η^2_H)	Large (0.55)	Small (0.045)	-0.505
Top Group Performance	95% > Median	62.5% > Median	-32.5%

TEST RESULTS FOR HYPOTHESIS FOUR

We reject H_{04} : There will be no difference in the median Scopus citations by counts among the five Tier 2 areas of specialization compared to a control group when all the Tier 2 areas of specialization are searched for “in the title of the article” and the one control group area of specialization is searched for “in the abstract of the article.”

For **Hypothesis 4**, the results mirror the patterns found in Tier 1 but with a slightly smaller, yet still "large," effect size. Table 11 shows the pairwise comparisons and the median test results. A Kruskal-Wallis H test revealed a statistically significant difference across the groups ($H(5) = 72.405$, $p < .001$, $\eta^2_H \approx 0.288$). The Median Test also confirmed this disparity ($\chi^2(5) = 42.200$, $p < .001$), primarily driven by the **Control Group** (SMGCOMM_C2), which had only **5 out of 40 cases** (12.5%) fall above the median of 68.50.

Summary of Hypothesis 4 Results

The analysis for Hypothesis 4 demonstrates that search location ("title" vs. "abstract") remains a dominant factor in citation counts within Tier 2 specializations. The **Control Group** (abstract search) was significantly outperformed by every "title" search group, with standardized test statistics (Z) ranging from **4.746 to 7.230** (all adjusted $p < .001$). Among the title-searched groups, **Interpersonal Communication** showed the highest median split (77.5% above median), while **Mass Communication** and **Dispute Resolution** were the lowest (42.5%). However, similar to the findings in Hypothesis 3, there were no statistically significant differences *between* the various title-searched specializations once Bonferroni adjustments were applied. This confirms that while the sub-field has a minor impact, the primary driver of the citation gap is the search visibility of the article title.

In this case:

- $H = 72.405$
- $N = 240$
- $k = 6$

Therefore:

$$\eta^2[H] = (72.405 - 6 + 1) / (240 - 6)$$

$$\eta^2[H] = 67.405 / 234$$

$\eta^2[H] \approx$ is approximately equal to ≈ 0.288 . This value suggests a large effect size, based on common interpretations where eta-squared values greater than or equal to 0.14 indicate a large effect.

TABLE 11
PAIRWISE COMPARISONS OF AREAS OF SPECIALIZATION AND MEDIAN TEST RESULTS WITH CONTROL (TIER 2)

Sample 1-Sample 2	Test Statistic	Std. Error	Std. Test Statistic	Sig.	Adj. Sig. ^a
SMGCOMM_C2-Mass Communication	73.663	15.522	4.746	<.001	<.001
SMGCOMM_C2-Dispute Resolution	82.925	15.522	5.342	<.001	<.001
SMGCOMM_C2-Intercultural Communication	99.138	15.522	6.387	<.001	<.001
SMGCOMM_C2-Electronic Media	109.5	15.522	7.054	<.001	<.001

SMGCOMM C2-Interpersonal Communication	112.225	15.522	7.23	<.001	<.001
Mass Communication-Dispute Resolution	9.262	15.522	0.597	.551	1
Mass Communication-Intercultural Communication	25.475	15.522	1.641	.101	1
Mass Communication-Electronic Media	35.838	15.522	2.309	.021	0.314
Mass Communication-Interpersonal Communication	38.563	15.522	2.484	.013	0.195
Dispute Resolution-Intercultural Communication	-16.212	15.522	-1.044	.296	1
Dispute Resolution-Electronic Media	-26.575	15.522	-1.712	.087	1
Dispute Resolution-Interpersonal Communication	-29.3	15.522	-1.888	.059	0.886
Intercultural Communication-Electronic Media	10.363	15.522	0.668	.504	1
Intercultural Communication-Interpersonal Communication	-13.087	15.522	-0.843	.399	1
Electronic Media-Interpersonal Communication	-2.725	15.522	-0.176	.861	1

Median Test For Hypothesis 4

		Dispute Resolution	Electronic Media	Intercultural Communication	Interpersonal Communication	Mass Communication	Control
Cited by	> Median	17	27	23	31	17	5
	<= Median	23	13	17	9	23	35

Each row tests the null hypothesis that the Sample 1 and Sample 2 distributions are the same.

Asymptotic significances (2-sided tests) are displayed. The significance level is .050.

a. Significance values have been adjusted by the Bonferroni correction for multiple tests.

Comparison of Control Groups (Tier 1 vs. Tier 2)

It is worth noting that the **Tier 2 Control** (12.5% above median) performed slightly better than the **Tier 1 Control** (0% above median). This suggests that while searching the "abstract" generally yields lower citation counts, the "abstract" results in Tier 2 fields are slightly more competitive within their own tier than those in Tier 1. Table 12 citation performance: Tier 2 vs. control (title vs. abstract).

TABLE 12
CITATION PERFORMANCE: TIER 2 VS. CONTROL (TITLE VS. ABSTRACT)

Area of Specialization	Search Location	Count > Median (68.5)	% > Median	Std. Test Statistic (Z)*
Interpersonal Comm.	title	31	77.5%	7.230
Electronic Media	title	27	67.5%	7.054
Intercultural Comm.	title	23	57.5%	6.387
Dispute Resolution	title	17	42.5%	5.342
Mass Communication	title	17	42.5%	4.746
Control (SMGCOMM)	abstract	5	12.5%	Reference

*Note: All Z-scores indicate a significant difference compared to the Control Group ($p < .001$).

DISCUSSION

This study investigated the impact of Area of Specialization and Search Location (title vs. abstract) on Scopus citation counts across two academic tiers. The evidence across all four hypotheses leads to three primary conclusions. Tier 1 Dominance: Specialization is a massive predictor of success in Tier 1 ($\eta^2_H \approx 0.55$), where the overall median (191.5) is more than double that of Tier 2 (75.5). The "title" Visibility Advantage: In both tiers, searching for terms in the Article title yielded significantly higher citation counts

than searching in the abstract. This effect was most extreme in Tier 1, where the "abstract" control group failed to produce a single case above the median. Tier 2 Homogeneity: While Tier 1 has clear "superstar" fields like Digital Media, Tier 2 specializations perform much more uniformly, with a much smaller effect size ($\eta^2_H \approx 0.45$). This study examined whether including a communication area of specialization term (for example, "digital media" or "health communication") in an article's title versus only in its abstract impacts citation counts across National Communication Association (NCA) interest group areas. Using Scopus, 40 of the most cited articles from 20 NCA specializations from 2005–2024 with the specialization term in the title and 40 with the term in the abstract only, were analyzed. As citation counts were highly skewed and violated normality (See the Appendix for raw data), Kruskal–Wallis H tests with Bonferroni-adjusted pairwise comparisons were used to compare median citation counts within and across two citation "tiers" formed from the 10 most highly cited title-level specializations.

Implications for Title Design

The findings of this study carry implications for scholars who are engaged in the development of titles as a strategic effort aimed at increased research dissemination and reach. Results suggest that titles function not merely as descriptive elements, but as signals that influence discoverability and potential impact of scholarly work. The finding that articles with specialization terms in the title have an advantage over other articles suggests that scholars should strategically insert specialization terms into article titles to maximize reach and impact.

Further, results highlight the importance of aligning title construction with disciplinary norms and the citation environment. Findings indicate that in higher-citation sub disciplines (Tier 1), the use of specialization terminology seems to increase visibility within already active citation networks, reinforcing the popularity of that subdomain. However, in lower density citation environments (Tier 2), the marginal gains in citation count across subfields are more uniform. This suggests that scholars should calibrate their title strategies not only to maximize discoverability within their own subfield, but also to gain exposure in adjacent subfields. This may mean that a paper that is primarily related to a Tier 2 subfield such as mass communication, may use title keywords that would be read by researchers interested in Tier 1 subfields, such as digital media.

Finally, the findings highlight the strategic tradeoff between specificity and reach. While highly specialized terminology may limit interdisciplinary appeal, the findings of this study suggest that benefits of clear and explicit field signaling in titles outweighs the downsides associated with limited interdisciplinary appeal, at least in recent communication research. This implication is particularly salient in modern, digitally indexed environments where keyword matching drives visibility. As such, scholars should consider these tradeoffs when developing titles.

Implications for Research

Research on the drivers of citation counts is ongoing. This study highlights the importance of moving beyond content-based explanations and incorporating an integrative view that incorporates metadata, visibility mechanisms, and structural features of academic disciplines, particularly in the digital, keyword-based research environment. While traditional belief is that research quality, novelty and impact drive citation counts, our findings suggest that in some circumstances, the placement of keywords in titles can influence citation counts. As a community of scholars, this may cause us to reevaluate the utility of citation counts in determining research impact in the digital keyword search era.

Limitations and Future Research

This study represents an early attempt to understand the drivers of citation counts in digital keyword search environment. While this study demonstrated keyword-based drivers of citation counts, it was limited in several ways. First, this study relied exclusively on Scopus data. Different databases (like Google Scholar or Web of Science) may index abstracts differently, potentially altering the visibility gap (Bell, et al. 2025). While title searches correlate with higher citations, it is unclear if the title itself drives the citations or if high-impact journals simply have stricter title-formatting requirements.

The findings are limited to the specific Communication-related specializations selected for Tier 1 and Tier 2 and may not generalize to STEM or other Social Science fields. To enhance the generalizability of findings, future studies should examine the effect of title construction on citation outcomes in other fields. Discipline specific factors, such as discipline size, number of sub specializations, network centrality, and power dynamics and nepotism among researchers may influence outcomes.

While this study identified associations between title construction and citation counts, the underlying mechanisms remain poorly understood. While this study offers potential explanations for the effects identified, these mechanisms should be confirmed via experimental studies.

Finally, researchers need to consider and come to consensus on how research impact is evaluated. If citation counts can be gamed based on activities adjacent to search engine optimization, are citation counts and the metrics derived from them, such as impact factors, truly appropriate surrogates for research impact? And if not, what is an appropriate measure?

CONCLUSION

Results indicate statistically significant differences in median citations among Tier 1 specializations when the specialization appears in the title and when compared to a control specialization coded only in abstracts, with digital media, health communication, and political communication benefiting most from title inclusion. In Tier 2, median citation differences across specializations are smaller when searched in titles but become pronounced when compared to a control specialization coded only in abstracts. Median tests show that, for both tiers, not all communication areas gain equally from being named in the title, and control groups with specialization terms only in abstracts consistently have a greater proportion of papers below the citation medians. The findings suggest that explicitly naming certain communication specializations in article titles is associated with substantially higher citation impact in Scopus, with implications for how authors, editors, and reference librarians strategically frame communication research for discoverability.

A primary discovery of this research is the "title Advantage." In both tiers, articles searched by **title** yielded significantly higher citation counts than those searched by **abstract**. This effect was most pronounced in Tier 1, where the control group (abstract search) failed to produce a single case above the overall median. This suggests that title-indexed keywords are a primary driver of discoverability and subsequent citation.

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APPENDIX

SCOPUS RAW DATA WITH 40 CELLS PER TOPIC (SEARCH RESULTS) IN THE TITLE OF THE ARTICLE

Digital Media	Health Communication	Media Literacy	Political Communication	Public Relations	RHETCRIT - C1 (Control)	Dispute Resolution	Electronic Media	Intercultural Communication	Interpersonal Communication	Mass Communication	SMGCOMM - C2 (Control)
2271	451	105	227	162	16	63	118	57	571	64	3
1039	406	105	123	174	24	51	261	70	114	223	11
969	288	119	147	160	23	57	168	323	90	62	11
844	193	109	154	135	15	167	81	94	74	51	3
811	278	149	190	130	133	147	61	84	86	322	409
571	189	303	144	141	14	90	355	79	78	54	3
484	210	110	158	132	18	133	51	82	85	194	4
458	136	120	124	156	20	68	98	78	1096	41	7
445	809	348	389	169	16	62	58	201	66	122	4
443	165	151	1193	319	20	90	53	65	95	118	9
436	147	133	224	134	24	142	240	91	82	48	12
422	210	116	204	153	33	76	72	64	88	60	37
381	155	131	403	309	15	77	105	83	87	68	3
373	192	148	143	165	28	92	50	81	110	93	21
362	207	108	1069	222	16	65	90	84	76	45	4
349	132	129	151	128	13	57	53	65	60	48	2
323	391	443	212	189	34	74	75	166	86	47	44
314	175	114	154	344	14	54	59	124	68	53	3
277	130	181	347	127	50	65	54	82	140	133	90
271	299	121	243	143	32	53	149	63	77	60	35
256	719	422	448	134	37	84	236	62	62	103	61
254	830	156	130	169	18	50	72	57	75	142	6
250	158	113	496	151	14	226	54	92	70	46	3
246	1256	155	254	212	13	51	135	84	163	43	2
236	152	300	141	195	22	86	72	492	144	46	10
233	199	128	223	204	24	59	174	85	60	58	12
227	130	128	365	128	59	96	255	99	62	68	110
225	142	241	1144	142	16	55	57	93	72	73	4
209	615	153	349	208	37	1100	144	64	57	50	44
204	285	250	360	288	18	68	77	70	84	218	6
203	153	100	362	388	27	57	110	86	130	44	14
203	149	234	410	131	25	51	106	61	90	103	14
200	155	100	203	157	30	52	53	65	135	49	26
191	190	112	188	341	15	60	55	57	76	103	3
190	201	159	149	135	18	87	79	65	81	80	4
175	142	108	1037	137	19	60	53	68	313	76	7
173	177	111	139	136	44	112	642	67	66	121	76
166	260	416	528	285	20	67	913	58	70	74	8
164	1754	166	180	139	28	65	84	66	56	50	22
163	268	163	187	192	69	51	386	61	69	44	136
Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total
16011	13098	6958	13292	7464	1111	4220	6008	3888	5164	3497	1283

*Both the Control variables represent SCOPUS Search results for “in abstract only.”