

Special Issue: Hidden Gems in Media Studies

Hidden Gems from the Communication of Innovations and Network Literature

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ABSTRACT

Why do certain articles, particularly innovative ones, go unnoticed in Communication? In light of this issue, two particular articles merit greater attention. Nam and Barnett (2010) contribute to a broader understanding of media substitute theory by drawing on diffusion research. Barnett and Park (2014) investigated the Internet as a concentration of many communication networks. Communication researchers have disregarded these two articles that require greater attention. The authors believe that employing an atomic and cognitive strategy in communication research impedes our potential to obtain the renowned academic reputation that a broader perspective and techniques would facilitate. Restructuring research practices in Communication to better comprehend society will result in new insights and findings.

KEYWORDS

communication science, diffusion of innovation, Internet, individual bias, macro-level perspective

What are the reasons why certain articles, especially innovative ones become hidden? This essay addresses that question and then provides two examples of articles have received little attention by the Communication field. The first one is from the diffusion literature. It is by Yoonjae Nam and George A. Barnett, entitled “Communication media diffusion and substitutions: longitudinal trends from 1980 to 2005 in Korea”. It was published in 2010 in *New Media and Society*. It makes a significant contribution to the diffusion of innovations and media substitution literatures. The second, by George A. Barnett and Han Woo Park examined the Internet as variety of communication networks. It appeared in (Quality & Quantity in 2014.) These two articles have largely been overlooked by Communication scholars and deserve further attention.

Communication As a Diverse Discipline

Intellectually, Communication is a diverse discipline. With the possible exception of information theory (Shannon, 1948), there is no overarching theory of communication. Even information theory was not among the 89 most frequently mentioned theories in the leading journals of the field between 2000 and 2009 (Chung et al., 2013). Historically, Communication evolved from Speech and Journalism. Hence, scholars research focused exclusively on either interpersonal or on mass communication. Barnett and Danowski (1992) found that the members' affiliations in the various divisions and interest groups of the International Communication Association (ICA), the preeminent global scholarly association, were differentiated along three dimensions—mass to interpersonal communication, humanities to scientific, and theoretical to applied. Also, the division and interest groups clustered into three groups, humanities, mediated and interpersonal. Over time, ICA differentiated further, fragmenting from 13 divisions and interest groups in 1992 to 29 in 2016. Jiang and Barnett (2018) found that despite its growth, ICA was structured similarly to previous research. They reported that the discipline was differentiated along a science to humanities dimension, and another that separated mediated from the interpersonal communication. Also, the divisions and interest groups fragmented into more clusters. *Organizational Communication* and *Public Relations* formed a unique dyad. *Mass Communication*, *Journalism*, and *Political Communication* were grouped together, while a cluster emerged around *Communication and Technology* and *Information Systems*, and another formed that included *Health Communication* and *Interpersonal Communication*. The humanistic units remained separate.

Barnett et al. (2011) analyzed the citation trend of 45 journals classified as "Communication" by the Web of Science. Their findings indicated

that the citations belonged to one of three categories: text analysis, technical writing, or generalized communication. In addition, the later set of citations can be further subdivided into a group devoted to women's studies, macro-level sociopolitical issues, and a micro-level psychological component. Today, there are considerably more journals, focusing on specialized topics that reside at the periphery of the discipline, resulting in communication scholars' attention being focused on one limited area of the literature rather than on the entire corpus. As a result, much research is hidden from scholars' attention.

Montero-Díaz et al. (2018) used the WoS's "Communication" category to analyze co-word mapping in communication research for 33,627 publications from 74 journals from 1980 to 2013. According to the findings, communication research focuses on sixteen thematic areas: "children," "psychological aspects," "news," "audience," "surveys," "advertising," "health," "relationship," "gender," "discourse," "telephone communication," "public relations," "telecommunications," "public opinion," "activism," and "Internet." These sectors have become increasingly isolated from one another, resulting in a fragmented conceptual framework in the field of communication. This slows scientific progress because research topics are growing increasingly distant.

The average number of ICA divisions and interest groups to which an individual is a member is 2.3 (Jiang & Barnett, 2018). With 29 sections vying for the members' attention, scholars can't be aware of accomplishments across the entire discipline. Thus, scholars limit their exposure from the full range of communication research to only that which is most relevant to their current research. Also, the association's divisions and interest groups varying in their memberships' sizes. While, the well-established divisions, *Communication and Technology* and *Mass Communication* have over 800 members, most of the newly formed ones, *Environmental*

Communication, and Games and Popular Culture have around 100. As a result, less attention is paid to research in these less populated areas.

Jiang and Barnett (2018) also examined the scholars' countries of origin, and the concepts used in ICA conference paper titles from 2013 to 2016. They found that the study of communication in the United States was the most comprehensive and diverse, while mobile communication, environmental communication, and communication technology were the main areas of interest for researchers from East Asia. In Europe, while Germany focused on political and mass communication, the United Kingdom paid more attention to journalism and communication theory. Thus, geography also plays a role in determining ones' awareness of the publication communication research.

Superimposed on the structure of scholars' affiliations and differences in interests due to geography, an additional cleavage exists. The discipline further diverges between a focus on the micro, the psychology of the individuals, and the macro, society at a national or global level. Based on citation patterns, Everett Rogers and Larry Kincaid (1981) identified two shortcomings in communication research—the focus on the individual and on psychological biases. In most survey and experimental research, the unit of analysis is atomistic. Park and Leydesdorff (2009) suggested that Psychology is the discipline's primary influence. Castillo-Esparcia et al. (2012) analyzed the content of the ten most cited Communication journals and found a predominance of psychology. This is exemplified by the study of persuasion (attitude change), behavioral compliance, communication anxiety and reticence, as well as nonverbal communication, which have traditionally dominated the pages of the field's journals. Even areas like intercultural communication, computer-mediated communication, and human-computer interaction are concerned with the psychological consequences of communication

on individuals, rather than how it influences society and interactions between persons. This has led scholars to disregard the context of human communication. Ignored are higher-level entities—dyads, groups, organizations, and society, which emerge because of social relations.

FIRST GEM: NAM AND BARNETT (2010)

Given this fragmentation, it is no surprise that many important and innovative articles remain hidden. In this essay, we suggest two “hidden gems” and the reason these articles are worthy of an examination by a wider audience. One such gem is Nam and Barnett (2010) that analyzed the longitudinal trends in Korean use of eight communication media, (1) domestic mail, (2) international mail, (3) domestic telephone calls, (4) international outgoing telephone calls, (5) telex, (6) mobile telephones, (7) televisions, and (8) the Internet. They examined each media's displacement or supplementary effects. The results showed that international mail, domestic telephone, and telex can be best described by a quadratic pattern (an inverted *U*-shape relationship) indicating they were undergoing disadoption, while the trends for domestic mail and international telephone calls showed exponential growth. Correlations confirmed that new media had displaced the older media—international mail, domestic telephone, and telex. However, they did not substitute for domestic letters or international telephone calls. Finally, television, mobile telephones and the Internet were at the exponential or logistic growth stage supplementing each other.

This article is significant because it overcomes many biases in the communication of innovations literature (Rogers, 2003). First, it considers not only the adoption of new media, but also the rejection and disadoption of older technologies. Disadoption or discontinuance occurs when

a product, practice, or idea does not meet its expectations or when it may be superseded by another with greater relative advantages. As a result, the reported research does not suffer from a pro-innovation bias. Second, it does not take an atomistic view of diffusion (Rogers & Kincaid, 1981). Rather, it focuses on the process of media substitution by the entire nation of South Korea. Third, it does not examine psychological attitudes toward the media or the other attributes of individuals, such as their demographic characteristics. Instead, it uses aggregated overtime behavioral data to describe the use of the various media. Fourth, it does not focus on the content of a single media (television) but rather, it describes the use of many in the media environment. Finally, it does not take an American perspective, but studies the adoption and discontinuance of communication technologies in another society.

Besides diffusion research, this article also contributes to media substitution theory (Kaye & Johnson, 2003; Lin, 2004). Media substitution theory argues that since individuals have only a limited time to devote attention to a given media, that they will substitute a new media with relative advantages for an older one. Nam and Barnett demonstrate this by showing that the older media—international mail, domestic telephone and telex were displaced by newer forms of communication that have relative advantages such as lower cost and ease of use. For example, international telephone was disadopted, replaced by email and the Internet.

Since the publication of Nam and Barnett (2010), over 870 publications have been published with “communication” and “diffusion” in both the title and abstract.¹ According to

Google Scholar, Nam and Barnett has been cited only 41 times, far fewer if self-citations by the authors themselves are not counted. Of these citations, only 12 appear in the communication literature. Disciplines other than Communication comprise most of the citations, including Management, Political Science, Agriculture and the other Information Sciences. Given the significance of this article, why has it been ignored by Communication scholars? It was published in a high impact journal, *New Media & Society* giving the research visibility.²

One of the reasons might have been that it was not central to one of the specific areas of communication research. It was not mainstream mass communication, information systems, communication technology, or international/intercultural communication. Perhaps, it was ignored because it took a macro perspective on the use of media technologies rather than an individual psychological perspective on the diffusion of innovations. Possibly, because its focus was on South Korea rather than the United States, it was overlooked by American mass communication scholars. Or maybe, since it did not suggest how to facilitate the marketing of new media by practitioners, it was viewed as irrelevant. Regardless, this research gem deserves further attention. Finally, it was published closed access journal. This has an impact on the growing audience as the open access movement gains popularity.

However, this article has the potential to awaken a latent sense of beauty in the field of communication. Approximately 10% of its citations, according to Dimensions (Hook et al., 2018), have come in the last two years.³ Furthermore, it garnered around ten times the

¹ The publication data were drawn from Dimensions.ai, the world's largest linked scholarly database (Hook et al., 2018). The VOS viewer was used to complete the data parsing in both the title and abstract parts (Van Eck & Waltman, 2011). The data were collected on December 20, 2023.

² According to Journal Citation Reports, *New Media & Society's* impact factor in 2020 impact factor was 8.061, ranking it second out of 95 journals in the category "Communication." In 2023 its impact factor is 5.31.

³ <https://badge.dimensions.ai/details/id/pub.1017686935>

average number of citations when compared to other publications on the same subject. Its Field Citation Ratio (FCR) is 10.22. The FCR compares a publication's citation performance to similarly aged articles in its field. Any score above 1.0-1.5 implies above average citation by subject code and publication year. FCR is determined for Dimensions publications published in 2000 or later that are at least two years old. This study has been cited in six topical groups. The distribution below indicates that this article is crucial for roughly two-thirds of entire research fields, but not communication research. The citing academic fields include "Language, Communication, and Culture" (34.48%), "Creative Arts and Writing" (17.24%), "Information and Computing Sciences" (17.24%), "Commerce, Management, Tourism, and Services" (13.79%), "Human Society" (13.79%), and "Mathematical Sciences" (3.45%). The "citation image-makers" in the field of Scientometrics are the citing literature (Vargas-Quesada et al., 2023). All the publications listed above categories have been influenced by the Nam and Barnett article since is referenced by other authors.

SECOND GEM: BARNETT AND PARK (2014)

Another article worthy of attention is Barnett and Park (2014) who examined the network structure of the international Internet using four different sources of data: (1) the infrastructure—bilateral bandwidth between countries, (2) hyperlink connections among nations' domain names, (3) the structural equivalence of nations from the perspective of websites, measured by the percentage of specific websites' traffic from individual countries, and (4) the structural equivalence of nations from the national perspective, using the proportion of a country's 100 most-visited websites shared with other countries. The results indicated that

the international Internet network appears to consist of series of small worlds determined by language, geography, and historical circumstances. They concluded that the Internet cannot be depicted only through the examination of a single connection. Multiple indicators are needed to accurately describe the global Internet, each providing a different perspective.

Barnett and Park (2014) is significant for many reasons. First and foremost, the article provides a comprehensive description of the Internet's infrastructure, which provides the context for much of the research on communication technology. Second, it represents an early application of "big data" by the communication field. Barnett and Park examined over 14.3 billion links among hyperlink connections among 75 nations, 1,000 different websites and the proportion of a country's 100 most-visited websites shared with other countries. Third, the research takes a macro global perspective, rather than focusing on the use of the world-wide web individuals or a single country. Fourth, it employs multiple measures, physical connections and three different behavioral indicators of website use, unlike much research that only uses a single indicator. Fifth, rather than indicating only whether or not a link exists among two nodes, typical of network analysis at that time, it considers the strength of the ties (bandwidth capacity or degree of shared website use) among nations. Thus, Barnett and Park advanced the study of social networks.

Barnett and Park (2014) has been cited only 49 times (according to Google Scholar), but only 7 times by communication scholars. The article's other citations come from a variety of disciplines, including Systems Science, Electrical Engineering, Medicine, Education, other social sciences (Geography, Sociology, Public Administration and Planning) and Information Science. Since its publication, "communication" and "network analysis" have co-occurred 3,993 times in both the title and abstract.⁴ What are the reasons

why this article hasn't received greater attention by Communication? One reason may be that it was published in an interdisciplinary social science journal *Quality and Quantity*, which was traditionally geared towards European audiences, rather than in a mainstream Communication publication. Perhaps, it has been ignored because it took a global and macro perspective on the use of the Internet rather than using individuals as the unit of analysis. Also, it did not take psychological perspective on effects of the worldwide web. Instead, Barnett and Park used aggregate behavioral data to describe the structure of the international Internet and website use patterns around the world. It did not focus on the United States. Finally, it is not easily placed into one of the field's intellectual categories. International/intercultural communication research does not frequently examine technology (Park & Park, 2021). It tends to take a critical studies perspective or a focus on cultural differences in interpersonal communication or the relations among people from different cultures. Scholars examining technology typically don't consider culture. Barnett and Park did not take a critical perspective or an examination of cultural differences but considered the use of the Internet by the entire global community.

Still this article has a significant potential to rouse a body of dormant beauty in the realm of communication. People outside of the academic community are reading and mentioning academic publications. The reason for this is that there are numerous online platforms where intellectuals are communicating, including social media (Lee et al., 2017), media reporting (Park et al., 2021), and blockchain-based decentralized web3 outlets (Park, 2024). Barnett and Park received an 8 on Altmetric.com's digital visibility scale.⁴ Its amount and degree of online attention can be gauged by this high-level indicator. The 600 articles published in the *Quality & Quantity* have been monitored

by Altmetric. The average score for their attention is 4.4. Barnett and Park's performance was higher than 88% of its competitors. For example, Mansell (2016) extensively cited it in an influential "Open Democracy" op-ed, detailing that the data industry's use of algorithms has become very concentrated on a global scale due to the growth of the so-called "big data" ecology. She states that the findings of Barnett and Park have societal and economic implications that affect media and communications policy, network surveillance, and Internet governance on a global scale. Additionally, here are readership statistics for 19 Barnett and Park's Mendeley readers. Altmetric.com reports these reader demographics: student above master (26%), lecturer (16%), student above bachelor (16%), other (11%), and librarian (5%). Most of the individuals citing this article are junior, which bodes well for future the publication's citation.

In summary, this essay suggested the reasons why certain publications are overlooked by Communication scholars. The discipline is very fragmented into exclusive areas of research without an overarching theoretical perspective, with a further cleavage between a focus on the individual and aggregates. As a result, research is focused on specific topics, ignoring others, even those that present novel approaches to important problems facing the discipline. The essay identified two articles which have been infrequently cited in the literature, one that examined the communication of innovations and another that used multiple indicators described the structure of the Internet and the worldwide web.

Concluding Remarks: Communication Science's long-term viability

We are at a crossroads in communication research because the intricate details of modern society avoid prior categorization by a single dominant theory or approach. For the most of Human

⁴ <https://dimensionsplus.altmetric.com/details/2042083#score>

Communication's history, the solitary person has served as the fundamental unit of investigation and experimentation. Because of this tradition, software like SPSS, which allows researchers to run a statistical significance test on data entered in the "cases by variables" format without using a higher entity as a unit of analysis, has grown in popularity. Because they were previously unprepared to apply a variety of theoretical strands and analytical methodologies, communication researchers in the United States usually disregard a society's mediated problems when examining human communication processes. It is necessary to assess and reapply past research approaches employed in communication studies to conduct critical and empirical assessments of social and macro data rather than microscopical examinations.

The use of macro social data and their analysis is especially important when considering social policy and planning for nation-states in the 21st century. Investments in communication infrastructure should be made considering longitudinal trends in the use of communication technologies, such as the Internet, associated web-based software, and digital sensors, and how they impact existing media. It is imperative for decision-makers to consider the global context in an increasingly interconnected world community. The two articles described in this essay provide initial insights into how the analysis of digital traces may be used to facilitate these processes.

Let us present an example in which this change has occurred everywhere. According to Nobel laureates' research (Strotmann & Zhao, 2015; Xi et al., 2021), STEM (science, technology, engineering, and mathematics) have long sought to create a "paradigm shift" in their respective fields. This shows that theoretical and methodological diversity is necessary for communication science's long-term viability. The continued use of an atomic and cognitive strategy in communication research will hamper our ability to achieve the prestigious academic reputation, which wider viewpoints and

techniques have made possible.

Studying digital artifacts connected to human, organizational, environmental, international, and intercultural use of network technologies and mobile media involves a move from an atomistic focus to a macro perspective within a larger social framework. It is time to rebuild existing research practices to better understand society as a whole, generating new perspectives and initiatives. If we continue to use the research traditions and approaches that we have been using up to now, we chance abandoning important pieces of literature, which are sometimes referred to as "sleeping beauties in science" (van Raan, 2004). It is time for an awakening in the field of communication, and this essay has discussed hidden gems to help bring about that awareness.

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