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Abstract

Sport crisis communication research has emerged as a substantial subfield of communication, sport communication, and crisis communication. The purpose of this study is to assess the development and diffusion of the subfield's scholarly works to uncover the influential authors, theories, and journals central to the subfield's knowledge construction process. We chart the development of the subfield by combining network analysis and bibliometric methods. Our analysis of 25 years of scholarship in 25 journals reveals seven major areas of focus in sport crisis communication with an emphasis on applied and critical cultural scholarship. Furthermore, our research indicates that the *Journal of Sport & Social Issues* played an integral and interdisciplinary role in supporting the emergence of this area of study. We argue the subfield holds great opportunity for future growth, most notably in empirical research.

Keywords

sport crisis communication, network analysis, bibliometric methods, theoretical foundations, knowledge construction

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The study of sports is growing at exponential rates (Pike, Jackson, & Wenner, 2015; Wenner, 2015). Sport communication as an area of scholarship is represented with a growing number of interest groups and divisions at various international and national associations and conferences (Abeza, O'Reilly, & Nadeau, 2014), and sport communication programs are "snowballing" across various academic programs in American universities (Wenner, 2015, p. 249). Alongside such growth, a range of topical areas have emerged within the field. Hambrick's (2017) analysis of 1,283 scholarly publications in sport communication found 10 focal topical areas, and sport crisis communication was among the top five most studied. Sport crisis communication is positioned at the disciplinary intersections of communication, mass communication, public relations, sport communication, and crisis communication.

The definition of crisis includes "the perception of an unpredictable event that threatens important expectancies of stakeholders" (Coombs, 2014, p. 2). To apply this to sport, it is no surprise that the types of sport crises most often reported and researched include the use of performance enhancing drugs and other forms of cheating, poor communication or publicly saying something perceived as offensive, and violence both on and off the field (e.g., domestic assault). Crises in sport, just as in other contexts, are managed or remediated via communication. Crisis communication, broadly, has a significant influence on sport crisis communication scholarship due to the high prevalence of deviant behavior in sport (Pike et al., 2015) and the inherent need for the reputational maintenance of sport entities and individuals (Kruse, 1981). Scholars have explored sport crisis communication at the micro level (i.e., individual athlete), the meso level (i.e., organizational teams), and the macro level (i.e., international sports) because the nature of college and professional sports as entertainment media and its vast reach from the individual athlete to international sports leagues, makes sport crisis communication rife with research opportunities with great potential for continued growth.

It is with an eye toward the continued development of sport crisis communication scholarship that we carry out the first known systematic review of sport crisis communication to document the subfield's development. Systematic reviews of a field or subfield can reveal collaborations among researchers (Dahlander & McFarland, 2013), study the diffusion of theories and conceptual ideas (Borgman, 1989; Moody, 2004; Pasadeos, Phelps, & Edison, 2008; Pasadeos, Phelps, & Kim, 1998), identify influential publications (Gilbert, 1977; Lee & Sohn, 2016), and uncover gaps in the theories or methodologies (Abeza, O'Reilly, Séguin, & Nzindukiyimana, 2015; Filo, Lock, & Karg, 2015; White & Griffith, 1981). Given the interdisciplinary nature of sport crisis communication, a systematic review can bring to light the researchers, theories, journals, and foundational publications that form the network of the subfield and the influences from the various disciplines that constructed the subfield. Drawing from Chang and Tai (2005), we begin by asking: Who are the researchers who constitute intellectual groups that have developed this line of research? We address the research questions in this article by investigating the relationships among sport crisis communication researchers, the theories they use, the journals that publish their work, and the foundational literature from which they draw. To begin, we draw from the sociology of science literature to conceptualize our study and inform our research questions.

Literature Review

The sociology of science explains that today's authors build upon the works of past, foundational authors through the citation of prior research articles, thus constructing and expanding knowledge. For example, when an author chooses to apply one theory over another to his or her own research, that scholar is "implicitly displaying his or her allegiance to a particular section of the scientific community" (Gilbert, 1977, p. 117). Over time, communities of scholars focused on a niche area of research grow to become linked scholars within a subfield. The same rings true for the theories applied and the journals that diffuse the scholarship.

Reviewing the sociology of a subfield typically requires a systematic review that often takes the form of content analyses of bodies of literature. For example, in five recent systematic reviews of the crisis communication literature, researchers content analyzed scholarly publications and found that image repair theory (IRT; Benoit, 1995, 2015) and situational crisis communication theory (SCCT; Coombs, 1995, 1999, 2007) are the most often applied theories (Avery, Lariscy, Kim, & Hocke, 2010; Ha & Boynton, 2014; Ha & Riffe, 2015; Kim, Avery, & Lariscy, 2009; Nekmat, Gower, & Ye, 2014). Although insightful to know the frequencies of theories used, such reviews do not indicate how one theory is connected to other theories. In other words, the typical systematic review does not account for researchers' use of multiple theories concurrently in a single study nor does it reveal how researchers are connected by their co-authorship, use of theories, or how authors and journals connect by theories. Alternatively, a network perspective provides a conceptual, relational, and analytical framework for studying the interconnectedness of sport crisis communication.

A Network Perspective to the Sociology of Sport Crisis Communication

The importance of networks in the development of a subfield cannot be overlooked nor understated. The network perspective moves beyond mere frequencies of a topic area or theory; rather, it constructs an in-depth, interrelated view of the connections that make up a field or subfield. Subfields spring to life within networked research fields as "academic trends change over time" (Barnett, Huh, Kim, & Park, 2011, p. 468). Networks within a subfield can be constructed by identifying who collaborates with whom, which authors apply which theories, which authors are connected by their shared theoretical application, and through which journals this theoretical research diffuses throughout the growing subfield. Deepening the roots of the networked subfield further are those foundational works from broader disciplines and fields from which authors have drawn.

For some time, researchers have studied the connections among scholars or what is referred to as the "invisible college" (Chang & Tai, 2005; Crane, 1969; Lievrouw, 1989; Paisley, 1989; Price, 1963). An invisible college is a set of "relations among scientists or other scholars who share a specific common interest or goal" (Lievrouw, 1989, p. 622). How researchers define or study the relationships among scholars has ranged from informal to formal relations. Lievrouw favored conceptualizing the

relations toward the informal end whereas Crane (1969) focused more on the formal relations among scholars. Those at the informal end often examine the connections among scholars by studying whom they have cited in their published works (i.e., bibliometric or citation analyses). Researchers at the formal end focus on the collaboration among scholars by studying the bylines in authors' published works. Regardless of the formality of the relations, an invisible college is about the "social relationships [that] influence modes of conceiving and doing things" (Chang & Tai, 2005, p. 673).

We focus on those "social relationships" within sport crisis communication that have served as the building blocks of the subfield. In other words, our interest in the knowledge construction process (cf. Lee & Sohn, 2016) led us to consider how the invisible college emerged in ways that diffused theories throughout the sport crisis communication subfield. In our first phase, we study the interrelations of authors by assessing how authors are connected via their use of theories. We then study the foundational scholarship using bibliometric methods in the second phase to identify the underlying networked structure of the subfield's emergence. The following sections explain how such methods have been applied in past scholarly explorations.

Phase 1: Network Analysis of Sport Crisis Communication

Network analysis differs from the systematic reviews mentioned previously by moving beyond simple counts and allowing for the measurement of meaning (Doerfel, 1998). A network analysis investigates the relationships among content within certain boundaries and can be used to identify the dominant thematic categories that emerge within a field because it investigates paired associations. Doerfel and Barnett (1999) used network analysis to study the research presentations at the International Communication Association conference by gathering the presentation titles, conference divisions, and interest groups, and keywords from the research presentations. They noted the various clusters of research within the conference. More broadly, the investigation into such clustering—or interconnectedness—of authors and theories provides insight into the status of a subfield, as well as its development and evolution (Doerfel, 1998; Hambrick, 2017; Pasadeos et al., 2008).

Applied to the current study, a network analysis in Phase 1 identifies the connections, clusters, and the degree of centrality for the authors, theories, and journals from peer-reviewed, published sport crisis communication scholarship. Such an analysis not only reveals the "research productivity, as operationalized by academic publication, over time" (Hambrick, 2017, p. 4), but more importantly, examines the sport crisis communication subfield by how it is networked. A network analysis, for instance, can show how theory application creates connections in a field or subfield of study (or network) by examining which theories are most central in the network based upon the authors and co-authors who applied the theories, or by publication in academic journals. At the same time, identification of the connections among authors can reveal who the leading researchers are in a subfield. Combined, the three foci of network analysis in Phase 1 shows the ties among authors, theories, and journals—as well as the strength of these ties—and how they each contribute to form the network of sport crisis communication.

Phase 2: Bibliometric Methods to Reveal Foundational Works

Bibliometric methods have been applied in both the hard sciences and the social sciences to explore the construction of knowledge within a field or subfield. The social sciences can especially benefit from the knowledge construction process because the social sciences generally exhibit “information scatter,” meaning that many disciplines in the social sciences (i.e., sociology, psychology, communication) contribute to the study of other fields and subfields (Zupic & Čater, 2015, p. 54). Bibliometric methods include an array of methods, including the frequency of citations, co-author coupling analysis, cocitation clustering analysis, cocitation analysis, and bibliographic coupling (Boyack & Klavans, 2010; Zupic & Čater, 2015). This study applies several of these measurements to uncover the construction of knowledge within the sport crisis communication subfield.¹ For example, the subfield of political communication notably stemmed from the study of journalism (Lin, 2004). Likewise, sport crisis communication is a melding of communication, sport communication, and crisis communication.

Bibliometric methods go beyond the simple frequencies of systematic reviews and meta-analyses by including a multilayered view of the connections within a field that bridge current scholarship with its foundational publications. For example, cocitation analysis is the most commonly applied bibliometric method. Cocitation analysis requires gathering all the works cited from a body of publications and assessing the patterns of citations among and between those publications. Gilbert (1977) held that such bibliometric studies can reveal three main points: (a) the highly cited research publications or scholars significant to a field, (b) the impact of highly cited research publications or scholars across a field, and (c) the structure of highly cited research publications or scholars by displaying the centrality of the publications and scholars within a field. The connections and patterns of connections among and between publications and citations offer researchers a “quantitative confirmation” of the knowledge construction process (Zupic & Čater, 2015, p. 457). Bibliometric methods also provide a description of a field’s characteristics and its historical development (Lin, 2004; Pasadeos et al., 1998), and it reveals the influence of scholars (Boyack & Klavans, 2010).

Researchers have used bibliometric methods to examine public relations (Pasadeos, Berger, & Renfro, 2010), journalism (Tankard, Chang, & Tsang, 1984), advertising (Pasadeos et al., 2008; Pasadeos et al., 1998), and political communication (Lin, 2004). Scholars in sports, specifically, have studied athlete development models (Bruner, Erickson, Wilson, & Côté, 2010) and the citation frequency of sport communication (Hambrick, 2017). Drawing from these works, the current study provides a baseline of the development of the sport crisis communication subfield by identifying how the foundational publications reveal the patterns of citations (referred to and explained as *cliques*, below) in the subfield’s foundational publications, and the diffusion of the subfield through academic journals.

Revealing foundational scholarship. At the fundamental level, bibliometric methods can reveal the foundational publications, which can reveal the influence of specific

scholars, theories and conceptualizations, and publications. Pasadeos et al. (1998), for example, studied the foundational works in the advertising literature to examine the evolution of the field's development. Comparing foundational works (i.e., most frequently cited publications) from two time periods, Pasadeos et al. (1998) found that articles published in the 1990s had fewer citations to other fields than in the 1980s and claimed that advertising scholarship was becoming "self-sufficient" (p. 67). To better explain, foundational publications in advertising once originated from areas outside of the field (i.e., "information scatter") but as the field developed publications within the field of advertising emerged as seminal. Broadly, their study exemplifies how citations and cocitations can describe a field's characteristics and examine its development over time. Identifying the foundational works can show influential publications and speak to the development of a field or subfield.

Whereas Pasadeos et al. (1998) focused on citations and cocitations in the work cited of publications, the identification of publication subgroups can indicate the cohesiveness of the field or subfield. In other words, the examination of cocitations can also help explore networked subgroups that form *cliques* and *clusters*. Cliques (not the pejorative lay meaning) are based upon patterns of overlapping connections among citations where each citation is connected to every other citation (Borgatti, Everett, & Johnson, 2013). Clusters, on the contrary, develop as cocitations occur two or more times with each other but not necessarily with all other citations. Cliques can be understood as closer-knit subgroups than clusters but both explain unique information about a field's or subfield's knowledge construction. Clusters and cliques can indicate the strength of bonds among current authors and scholars and their publications. As citations are cocited across the field, over time, the foundation of the field takes form as cliques or clusters. Then, the cliques and clusters can be understood as themes of foundational works.

Diffusion of scholarship. Another aim for applying bibliometric methods is to identify the theoretical preferences of researchers and how theories diffuse through academic journals (Borgman, 1989; Pasadeos et al., 2008; Pasadeos et al., 1998). Some have studied this by using journal-specific analyses to examine the citations and cocitations within or between journals (Pasadeos et al., 2010; Tankard et al., 1984). For example, Park and Leydesdorff (2009) examined the citation patterns among communication-specific journals that specifically cite back to the *Journal of Communication* in an attempt to map the network structure of communication research.

More in line with the current study are the area- or focus-specific bibliometric examinations (Bruner et al., 2010; Hambrick, 2017; Lee & Sohn, 2016; Lin, 2004; Pasadeos et al., 2010; Pasadeos et al., 2008; Pasadeos et al., 1998; Tankard et al., 1984). The intermarriage of fields into more niche-focused subfields occurs through information scatter and knowledge construction that emerges from an invisible college. Applied to the current study, researchers in sport crisis communication know that the subfield is uniquely interdisciplinary—seemingly pulling together the fields/subfields of communication, sport communication, and crisis communication—but it is still unclear how sport crisis communication scholarship has developed as a subfield

in sport communication. This study fills that gap by revealing the foundation of this scholarly subfield and identifying its evolutionary categories (Pasadeos et al., 2008).

Identification of Scholarly Networks in Sport Crisis Communication Research

Sport crisis communication literature has emerged out of a several fields and theoretical paradigms; thus, the possible networks we could study are endless. However, our attention is on the theoretical development of the subfield and the foundational scholarship from which sport crisis communication is situated. Examining the theoretical development is a worthwhile pursuit because it can inform other researchers of the major and emerging areas in this literature as well as the scholarly gaps that need to be filled (White & Griffith, 1981). Two sequential research questions guide our two-phase study. The first phase, the network analysis, examines the authors, theories, and journals of the current sport crisis communication published articles. Specifically, we are guided by the following research question:

Research Question 1 (RQ1): (a) Which authors, theories, and journals are central to sport crisis communication scholarship, and (b) what are the patterns of connections among the authors, theories, and journals?

The second phase of our study, the bibliometric methods, further analyzes the literature by examining the citations within the articles from Phase 1. Here, we focused on the foundation of sport crisis communication scholarship by studying the citations of scholars and publications. We are guided by the following research question:

Research Question 2 (RQ2): (a) Which cited scholars and publications are central to the foundation of current sport crisis communication scholarship, and (b) what are the patterns of connections among this foundational scholarship?

Method

Data Collection Procedures

We gathered sport crisis communication peer-reviewed, published research articles from American and international journals of communication, mass communication, public relations, strategic communication, and sport during a 25-year period (1990-2015).² The conceptualization of this study focused on crisis communication's application to sports. For that reason, our rationale for the time period to begin at 1990 enveloped the inception and publication of the two major crisis communication theoretical models (IRT and SCCT), both of which were first published in the mid-1990s. We searched in academic and journal-specific databases to assemble a purposive census of topically related scholarly articles. The procedures and keywords were reviewed by a library database expert and followed recent systematic reviews (Ha &

Boynton, 2014; Ha & Riffe, 2015; Kim et al., 2009; Nekmat et al., 2014) and a concept-specific analysis (Lee & Sohn, 2016).

Article retrieval involved several steps: a keyword search, a combing through each journal's volumes and issues, and a Google Scholar search. Each journal has an online repository made available by its publisher. Each journal website was individually searched using keyword combinations such as "sport," "crisis" (Ha & Boynton, 2014), "reputation," and "image" (Nekmat et al., 2014). This combination was used in an effort to capture all sports-related crisis articles in the journal. This combination also equally represents keywords that are within the names of the two most often cited crisis theories discussed above (Avery et al., 2010; Ha & Boynton, 2014; Kim et al., 2009).

After the initial search, each volume and issue of each journal also were individually reviewed to seek out titles and text that might resemble sport crisis in an effort to collect any missed articles from the keywords search. This step was conducted because of the diverse disciplines that study sport crisis and because the words "crisis" and "crisis communication" are not always predominately featured in sports-related crisis research. For example, of the 34 articles mined from *Public Relations Review*, only six were returned by specifically searching the keyword "crisis" and only one sports-related crisis article was retrieved using the keywords "crisis communication" together. Considering the multidisciplinary journals investigated, other keyword terms were additionally applied. For example, "deviance" or "deviant" captured possible sport crises in sport sociology-related journals. More prevalent in this body of research was the use of individual, team, or sport names. Finally, an extensive search using keyword combinations were conducted in Google Scholar to check for any overlooked articles. Cumulatively, these searches returned 142 articles from 25 journals. Finally, a review of all citations within the 142 retrieved articles was conducted to identify any additional articles not already included; none were found.³

Edited books were not included in the initial data collection phase because books fall outside of the peer-reviewed published journal articles gathered. Edited chapter books do exist on the topic of sport crisis, including compilations of "Fallen Sports Heroes" (Wenner, 2013), the NFL (Benedict & Yaeger, 1998), and sports-focused image repair case studies (Blaney, Lippert, & Smith, 2013). Books were, however, included in the Phase 2 citation analyses because books were cited in the Phase 1 peer-reviewed articles.

A content analysis of the articles ($n = 142$) produced these data for the network and bibliometric analyses. Each article was the unit of analysis. The variables recorded in the content analysis included each article's title, year published, the journal of publication, authors' names, the institution(s) the authors are/were connected to via work or study, the theory or theories used in the article, and each article's citation list (Ha & Boynton, 2014; Ha & Riffe, 2015; Pasadeos et al., 2008; Pasadeos et al., 1998).⁴ The lead author and a graduate student, who was trained to use the codebook, analyzed approximately 20% ($n = 30$) of the same articles. After a series of trainings, the coders achieved acceptable interrater reliability for each variable as calculated with Krippendorff's alphas (α): title ($\alpha = 1.00$), year ($\alpha = 1.00$), journal name ($\alpha = 1.00$),

authors ($\alpha = 1.00$), institutions ($\alpha = .99$), and theory/theories applied ($\alpha = .94$).⁵ The lead author then content analyzed the remaining articles to produce these data used in the subsequent analyses.

Phase 1: Network Analysis

The networks were constructed from authors, theories, and journals and their connections based on their co-occurrence in an article. For example, an article by Natalie Brown-Devlin and Andrew Billings that cited SCCT and was published in *Public Relations Review* reflects a co-occurrence of Brown-Devlin and Billings as authors, SCCT as the applied theory, and *Public Relations Review* as the journal. Three networks were constructed for our network analyses: (a) authors connected by theories, (b) theories connected by authors, and (c) journals connected by theories. For example, with the authors and theories networks (e.g., Brown-Devlin and SCCT), the authors were listed in the rows and referenced theories in the corresponding authors' articles were listed in the columns to create a rectangular data two-mode matrix. The network of the journals was constructed from the co-occurrence of theories in a journal.

Phase 2: Bibliometric Methods

Bibliometric methods were applied to create the networks for analysis of the foundational publications. Here, we used the citations listed in the articles from Phase 1 to examine the cited scholars and publications. This procedure reveals the foundational networks in sport crisis communication. In total, 4,688 journal articles, book chapters, and books were cited in the 142 articles, and were cleaned and for the bibliometric methods. The bibliometric analytic techniques included citation and cocitation frequencies, cocitation cluster analysis, cocitation analysis, and bibliographic coupling analysis. Each method is explained in the following two sections.

Formatting Network Data

The network analyses were performed on two-mode network data, also referred to as bipartite graphs or a co-affiliation matrix (Hanneman & Riddle, 2005), which require a unique set of network analytic measures (Wasserman & Faust, 1994). With two-mode matrices, these data are arranged in mode1-by-mode2 rectangular matrices. For example, the author-by-theory two-mode matrix from Phase 1 was set to where X_{ij} cell = 1 if the i th author referenced the j th theory in an article, and $X_{ij} = 0$ otherwise. For Phase 1, the modes included the authors, theories, and journals, and for Phase 2, the cited scholars and publications. The network data were analyzed using UCINET 6.22 (Borgatti, Everett, & Freeman, 2002). For the analysis of the patterns of connections (RQ1b and RQ2b), the two-mode matrices were also transformed into 1-mode matrices (*for procedures see* Borgatti & Everett, 1997; Borgatti & Halgin, 2011).

Network Analytic Procedures and Measures

RQ1a and RQ2a sought to identify the central authors, theories, and journals, as well as the central foundational scholars and publications of sport crisis communication, respectively. Centrality analyses were performed during both phases of the study.

Centrality in a two-mode network identifies the most frequently co-occurring authors, theories, and journals.⁶ For this study, we used three centrality values. *Degree centrality* is based on the number of times two authors co-occur (Borgatti & Everett, 1997). For example, the central authors in our author-by-theory network, for Phase 1, identified the number of times two authors applied a specific theory. *Betweenness centrality* assesses how “between” a theory is in the network. Whereas degree centrality is based on the frequency, betweenness centrality assesses nodes (authors, theories, journals, citations) based on how frequently they are positioned along the shortest paths among all other nodes in the network (Opsahl, Agneessens, & Skvoretz, 2010). For instance, a theory might not be frequently referenced (i.e., low degree centrality) but could be cited by authors who reference multiple theories; thus, situating a theory between other theories (i.e., higher betweenness centrality). Finally, *eigenvector centrality* calculates author centrality based on the number of connections it has and the number of connections its connections have (Borgatti & Everett, 1997). For example, in the two-mode network, an author’s eigenvector centrality is determined by the sum of the centralities of the theories he or she used, and, simultaneously, a theory’s centrality based on the number of other authors who used said theory.

RQ1b and RQ2b directed attention toward the patterns of connections among the authors, theories, and journals, as well as the cited scholars and publications. For both phases, cluster analyses were performed to study the pattern of connections authors had to theories in Phase 1 and cluster analysis was performed to study the connections among the co-cited foundational scholars in Phase 2 (Boyack & Klavans, 2010; Zupic & Čater, 2015). Our Phase 2 analysis also included a clique analysis to depict the network of foundational scholars and their publications. Following the standard protocol, we defined a clique as each node having at least three or more connections that created a linked group. Cliques and clusters illustrate the subgroups within a network (Scott & Carrington, 2011). Subgroups in networks can then be analyzed to describe the characteristics that make up the network.

The last task in our bibliometric methods was to conduct a bibliographic coupling analysis of the cocitation cluster analysis data. A cluster analysis can indicate the cohesive subsets of a network by revealing trait-specific connections (Boyack & Klavans, 2010; Zupic & Čater, 2015). A bibliographic coupling analysis is a method applied after the cocitation cluster analysis to determine the major areas of study in the current body of literature (e.g., the publications from Phase 1). To clarify, the cocitation cluster analysis data were analyzed to determine the topical foci of clustered scholars and their respective publications. Pairing the major themes from those connected foundational publications to the major themes applied in the Phase 1 literature that cocited those foundational publications, completes this process of identifying the knowledge construction within the sport crisis communication subfield.

Table 1. Centrality Measures of Authors by Theory Application.

Degree centrality		Betweenness centrality		Eigenvector centrality	
Author ranking	Deg.	Author ranking	Btw.	Author ranking	Eig.
J. Sanderson	0.1	J. Sanderson	0.024	A. C. Billings	0.228
A. C. Billings	0.067	A. C. Billings	0.012	J. Sanderson	0.21
T. Tini	0.05	M. E. Hambrick	0.004	T. Tini	0.207
T. Bruce	0.05	N. Brown-Devlin	0.004	T. Bruce	0.207
N. A. Brown	0.05	C. Cooky	0.003	N. A. Brown	0.201
B. L. Quick	0.05	F. L. Wachs	0.003	K. A. Brown	0.18
C. S. Josey	0.05	M. A. Messner	0.003	M. E. Len-Rios	0.18
M. L. Butterworth	0.05	S. L. Dworkin	0.003	M. E. Hambrick	0.173
N. J. White Lambert	0.05	T. Tini	0.002	N. Brown-Devlin ^a	0.173
K. A. Brown	0.033	T. Bruce	0.002	B. J. Wigley	0.172

^aAn existential finding from this analysis notes that when an author changes his or her name, centrality in the network is affected, as depicted for Natalie Brown-Devlin. Had we adjusted her name for sameness, she would have a higher centrality throughout the network.

Results

Phase 1: Network Analyses of Authors, Theories, and Journals

The networks of Phase 1 were formed from the connections among (a) authors via their use of the same theories, (b) theories via author use, and (c) journals via the theories used in articles. These networks were assessed to reveal the most central authors, theories, and journals, as well as the clustering of authors and theories.

Centrality of authors. In total, the content analysis revealed 226 unique authors in the 25 years of sport crisis communication journal articles. A centrality analysis of those authors was based on the author-by-theory matrix. Table 1 shows how the authors rank according to degree centrality by theory application (frequency of citing the same theory), betweenness centrality (shortest paths), and eigenvector centrality (frequency of connections plus connections’ connections). Sanderson, Billings, N. Brown, Butterworth, and K. Brown are those most central by theory application. Sanderson published 10 articles that applied six unique theories. Sanderson’s work, which focuses on sports-related social media, offers an example of theory exploration in an emerging subfield.

Centrality of theories. Sixty unique theories were referenced in the articles. The theoretical network of sport crisis communication is made up of eight theories (Table 2): IRT, framing theory, SCCT, critical race theory, critical cultural (CC) theory, social identity theory (SIT), grounded theory, and feminist theory.

Centrality of journals. To build on the analysis of the theories within the subfield, we sought to reveal the most central journals publishing theoretically informed research.

Table 2. Theory Centrality.

Theory name	Degree	Betweenness	Eigenvector
Image repair theory	0.164	0.052	0.932
Framing theory	0.071	0.032	0.177
Situational crisis communication theory	0.053	0.012	0.22
Critical race theory	0.049	0.004	0
Critical cultural theory	0.04	0.009	0.022

Table 3. Journals Publishing Theoretical Works.

Journal name (listed by article frequency)	Article frequency	Theories frequency	Degree centrality rank (1-10) ^a
<i>Public Relations Review</i>	23	20	2
<i>Journal of Sport & Social Issues</i>	22	18	1
<i>Communication & Sport</i>	14	16 ^b	3
<i>International Review for the Sociology of Sports</i>	14	7	4
<i>Sports Management Review</i>	12	6	6
<i>International Journal of Sports Communication</i>	9	7	9
<i>Critical Studies in Media</i>	7	5	10
<i>Journal of Public Relations Research</i>	5	6 ^b	5
<i>Journal of Sports Management</i>	5	4	7
<i>Journal of Sports Media</i>	4	5 ^b	8

^aThe degree centrality rankings presented here range from 1 (*most central*) to 10 (*less central*) based on the normalized degree values for two-mode centrality.

^bIn some cases, articles published in a journal referenced more than one theory. Thus, the number of theories referenced in a journal may exceed the number of articles published.

Our results found that the top five most central journals in the network are *Journal of Sport & Social Issues*, *Public Relations Review*, *Communication & Sport*, *International Review for the Sociology of Sports*, and *Journal of Public Relations Research*. These journals are the source for diffusion of theoretically based sport crisis communication research. Table 3 reports the rankings, number of articles, and references to theories.

Cluster analysis of authors and theories. RQ2b also directed attention to the patterns of connections among authors and theories in the subfield, and revealed 18 clusters in the network. To focus on the most significant clusters, we specifically examine the five main clusters that had at least two or more published studies (Figure 1). Cluster 1 is IRT and it consists of 37 authors. Cluster 2 is framing theory (16 authors), Cluster 3 is SCCT (12 authors), Cluster 4 is critical race theory (11 authors), and Cluster 5 is CC theory (9 authors).

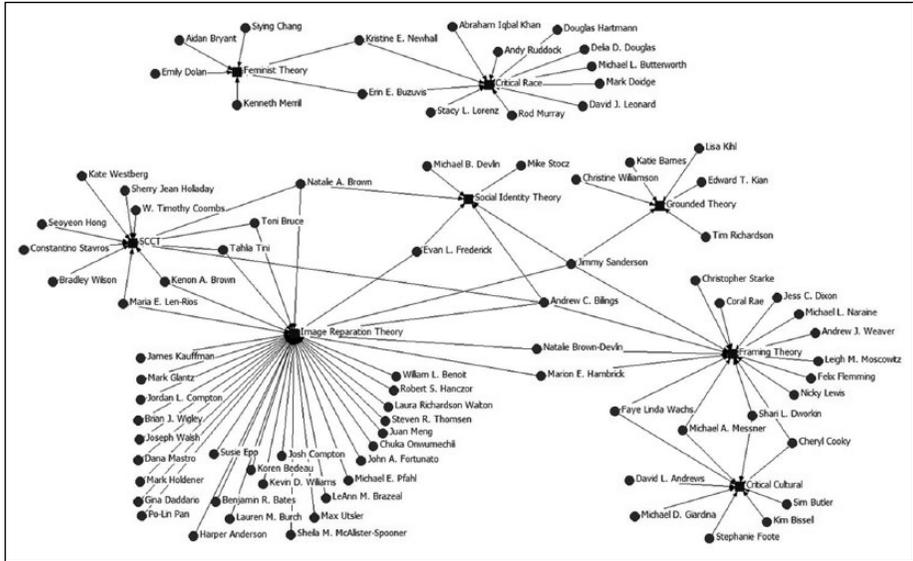


Figure 1. Clusters of authors by theory in SCCT. Note. SCCT = situational crisis communication theory.

Hierarchical cluster analysis further depicts how the theories connect. For example, six cluster members (authors) share membership in both the IRT and SCCT clusters, which makes the two theories closest in clustering hierarchy within the network. The next closest are two combinations that share four members in each cluster; those two clusters include IRT and SCCT and framing and CC. The next hierarchical cluster share three members in each cluster and they include the theories IRT, SCCT, and SIT and framing and CC. The final hierarchical cluster, before the entire network of theories is present, includes two members in each of the three clusters, which consist of IRT, SCCT, and SIT and Framing and CC and race and feminist. The cluster analysis depicts how sport crisis communication is examined most commonly in by applying IRT and SCCT, with a focus on social identity, through framing and CC analyses.

Phase 2: Bibliometric Methods Results

The networks for this phase of the study were then formed from the cocitation of scholars and publications. Specifically, scholars and publications had connections to one another if they were cited together in any article from Phase 1.

Centrality of cocited scholars and publications. The same three measures of centrality used in Phase 1 were used to also analyze the foundational cocitation scholarship (Table 4). The foundational scholars include Benoit, Kruse, Ware & Linkugel, Coombs,

Table 4. Cited Articles in Sport Crisis Communication by Cites and Centrality.

Total number of cites	Centrality rank			Publication information			
	Degree	Between	Eigen	Author	Year	Article title	Journal
25	1	1	1	Benoit	1995	Accounts, excuses, and apologies	SUNY Press
15	2	7	2	Benoit and Hanczor	1994	The Tonya Harding controversy	<i>Communication Quarterly</i>
15	3	3	4	Kruse	1981	Apologia in team sports	<i>Quarterly Journal of Speech</i>
15	4	5	3	Ware and Linkugel	1973	They spoke in defense of themselves	<i>Quarterly Journal of Speech</i>
14	5	6	5	Benoit	1997	Image repair discourse and crisis communication	<i>Public Relations Review</i>
12	NA ^a	NA ^a	NA ^a	Coombs	1999	Ongoing crisis communication	SAGE Publications
12	6	2	10	L'Etang	2006	Public relations and sports in promotional culture	<i>Public Relations Review</i>
11	8	10	6	Brazeal	2008	The image repair strategies of Terrell Owens	<i>Public Relations Review</i>
11	7	8	7	Fortunato	2008	Restoring a reputation	<i>Public Relations Review</i>
10	10	9	8	Nelson	1984	The defense of Billie Jean King	<i>Western Journal of Speech Communication</i>

^aCoombs (1999) is in the top 10 most cited articles but it is not cocited enough with other citations to be ranked among the top 10 centrality rankings (again, ranked 1 = *most central* to 10 = *less central*). Coombs (1999) is ranked 19th overall in the degree centrality of cited scholars and their publications. Not listed in the centrality-ranking column is Glaser and Strauss (1967), which is ranked ninth in centrality.

L'Etang, Brazeal, Fortunato, and Nelson. Scholarship identified as having the highest degree of centrality are also those highest in citation frequency. The foundational cocited publications included journal articles and two books. The two books are representative of the two crisis communication theories IRT and SCCT, respectively. Benoit's book on IRT is the most central publication to the foundation of sport crisis communication across all centrality measurements. Journal diffusion also emerged through this analysis, as movement is easily tracked from the *Quarterly Journal of Speech*, to *Western Journal of Speech Communication*, to *Quarterly Journal of Communication*, and then *Public Relations Review*.

Co-citation clique analysis of cocited scholars. The clique analysis of the cocited publications (a one-mode matrix) revealed 24 cliques among the publications that received 10 or more cites from the articles in Phase 1. The clique sizes ranged from 13 to five cited publications. That is, the largest clique, based on cocitation patterns had 13 cocited publications and the smallest clique consisted of five cocited publications. This reflects 24 combinations of seminal work applied in the study of sport crisis communication. Among the most frequently occurring scholars in these cliques are Fortunato, Benoit, and Coombs.

Cocitation cluster analysis of cocited scholars. The co-citation cluster analysis is based off of the 24 cliques of cocited publications. Benoit (1995), for example, has ranked highest in all other analyses up to this point, but only appeared in 16 clusters, which is not the highest membership frequency among the foundational clusters. Rather, Fortunato (2008) appeared in the most clusters with a total of 21 memberships, thus indicating that Fortunato has been cocited with other scholars and their publications in a broader range of publications. This might suggest that Fortunato's (2008) publication has a wide appeal to researchers in sport crisis communication.

Identification of knowledge construction in sport crisis communication. Finally, the bibliographic coupling analysis further reveals the construction of knowledge in the subfield by pairing the major themes from those connected foundational publications to the major themes applied in the Phase 1 that cocited those foundational publications. This process uncovered seven specific topical clusters in the sport crisis communication subfield. The first cocitation cluster is formed by the cocitation of Benoit's IRT book and Fortunato's 2008 scholarship that applied IRT to a sports-related organizational crisis. Looking to the current literature, the publications that cocited Benoit and Fortunato most commonly focused on an organizational crisis and that crisis was examined via the IRT typology.

The next shift in clusters of cocitations features scholarship related to athlete image repair. The cocitation cluster analysis shows the two sets of cocitation clusters—organizational sport crisis communication and athlete image repair—as unique and independent of each other. The next cluster signifies a focus on audience considerations, and then the fourth cluster introduces cultural aspects to the study of sport crisis communication. In Cluster 5, rhetorical studies expand and apologetics takes a more central

role in discussing sport crisis communication. The final clusters to form mark the addition of online and social media-related studies within the sport crisis communication subfield, and finally, the seventh cluster indicates gender-focused analyses.

To recap the results of this study, the Phase 1 network analysis revealed author collaborations, the exploratory application of theories, and the diffusion of the subfield through field- and subfield-related journals. The most central authors noted in Phase 1 are those who introduce new concepts or explore various frameworks like Sanderson and Butterworth; and those who engage in educational diffusion and collaborations, such as Billings, N. Brown/Brown-Devlin, and K. Brown. Theoretical development in the subfield has grown to include IRT, framing theory, SCCT, critical race theory, CC theory, SIT, grounded theory, and feminist theory. The majority of the smaller clusters of theories—framing, CC, race, and feminist—all arguably signify the connective methods each framework insinuates. Furthermore, the frequency counts of the Phase 1 literature shows that CC critiques and rhetorical analyses of case studies are the most commonly applied methods in this subfield. Finally, journals diffuse theories and are noted to be most interdisciplinary when they hold an increased eigenvector value. The network of theories through journals centers *Communication & Sport* between the *Journal of Sport & Social Issues* and *Public Relations Review*, and connects the former through critical race theory and the latter with the two crisis communication theories. Next, we discuss these results and then conclude with suggestions for future research.

Discussion

Our combination network and bibliometric analyses provide a whole network view of sport crisis communication. Our thorough investigation presents the networked nuances of the current literature, and the meaning behind the connections among authors, theories, and journals. The bibliometric methods applied in Phase 2 offer a concise view of the intellectual knowledge construction process and uncovers the sociology of science that is specific to the emergence of the sport crisis communication subfield (Gilbert, 1977; White & Griffith, 1981). The bibliometric methods also aided in precisely answering the three main points concerning knowledge construction posited by Gilbert (1977): (a) highly cited research publications or scholars significant to a subfield, (b) the impact of highly cited research publications or scholars across a subfield, and (c) the structure of highly cited research publications or scholars by showcasing the centrality of the publications and scholars within the subfield. Moreover, our complimentary whole-view analyses uncovered the seven main topical foci that constructed the subfield of sport crisis communication and offered a quantitative and visual representation of the “paradigms and research streams” that created the subfield (Pasadeos et al., 1998, p. 61).

The central authors exploring sport crisis communication reached beyond public relations scholars to additionally include those focused in the CC areas of gender, race, and rhetoric, those trained in traditional organizational communication, and emerging sport communication scholars. The foundational scholars, which include Benoit, Kruse, Ware & Linkugel, Coombs, L'Etang, Brazeal, Fortunato, and Nelson, demonstrate the study of rhetorical self-defense as the most common sports-related crisis

aspect to initiate the emergence of this subfield. Simply conducting a meta-analysis or a systematic review would not have revealed this common thread throughout the subfield because apologetics (e.g., rhetorical self-defense) was not explicitly named within the top frequencies nor was it listed among the most central foundational frameworks. The combined examination of the current and foundational scholarship, coupled with network and bibliometric analyses, is, therefore, suggested for future examinations concerning the knowledge construction of a subfield.

Additional Topical Foci That Built the Subfield

We determined the major areas of study in the current body of literature through a bibliographic coupling analysis of cocitation clusters. Our study took a different approach that contrasts Hambrick's (2017) process of inductively constructing topical areas of research. Hambrick's initial process of reading the title, keywords, and abstract of the current sport communication literature resulted in 245 different topics that were then reduced down to 20, and then to 10. In contrast, we applied Zupic and Čater's (2015) concept of bibliographic coupling analysis where we analyzed the cocitation cluster analysis from the network analysis procedures and matched those results with the focus of current literature that cited those particular publications. This process identified seven main areas of focus in the subfield that the foundational scholarship constructed in the current literature. The seven areas include athlete image repair, organizational sport crisis communication, audience considerations, cultural considerations, rhetorical self-defense, new media, and gender.

These seven focal areas help explain the historical lineage of the subfield. The rhetorical postures extended by sport organizations and sport personas in response to crises are the very basis of this subfield. Kruse (1981) was among the first to explicitly state that sport personas have as much need to protect reputational assets as any other public figure. Researchers came to realize that reputational crises occur frequently throughout sports, both at the collegiate and professional levels, as well as at the organizational and individual levels. As the subfield has grown, prescriptive strategies and tactics for organizations and individual athletes have matured. Another shift in the subfield came with a turn toward audience perceptions of those extended reparation strategies, as well as the new media channels where discourse takes place. Cultural and gender-specific topics are common throughout sports-related research so it is no surprise that sport crisis studies that are gender-focused are mostly about hegemonic masculinity. This overall synopsis of seven topical areas depicts the macro, meso, and micro areas of research that have constructed today's subfield.

Theoretical Application in the Current Body of Sport Crisis Communication

The application of a wide theoretical array in the current body of research shows the exploratory nature of an emerging field. The content analysis portion of this study revealed 60 named theories in the current literature. The fact that 60 theories were collected among the 142 articles demonstrates the information scatter that often litters

emerging social science subfields (Zupic & Čater, 2015). Still, among all of those theoretical applications, eight theories stood out as central to the subfield. We discuss these eight theories from a network perspective.

The theoretical network of sport crisis communication created two distinct clusters (Figure 1). The largest cluster features IRT as the largest and most central theoretical framework. IRT links to SCCT, SIT, framing, grounded theory, and CC. The second smaller cluster consists of critical race and feminist theories. Critical race theory is much more prominent in this subfield than feminist theory, which is the opposite of what has been found in the sociology of sport (Dart, 2014). Of note is the fact that critical race and feminist theories do not adhere to CC. CC was instead connected to the larger cluster through framing theory. This denotes that framing is likely applied as a form of method in assessments of sports-related crises. This link is likely due to the use of CC in a general sense to encompass a critical critique or a rhetorical analysis of a sport-related crisis and accompanying remediation attempts.

IRT (Benoit, 1995, 2015) is undoubtedly the most central theory in this subfield's network, which pairs with prior findings (Avery et al., 2010; Ha & Boynton, 2014; Kim et al., 2009; Nekmat et al., 2014). Uniquely, our study shows *how* IRT links together with other theories, as well as how it grew from past scholarship. To explain, the hierarchical clustering of theories shows that IRT and SCCT (Coombs, 1999) connect strongly with each other. The dual citation of IRT and SCCT is likely due to comparisons of the differing strategies and tactics each theory offers for crisis communicators and researchers. Oftentimes, authors cite more than one theory to strengthen their argument for use of another (Zupic & Čater, 2015). IRT is most often applied to individual-level crises in assessment of retrospective rhetorical strategies and SCCT is most often applied to organization-level analyses. The distinction between the two crisis theories emerged within the major areas of study, too.

By exploring how theories connect, we can uncover other attributes of interest to help explain the construction of knowledge in a subfield. For example, Tankard et al. (1984) found that a content analysis book and film studies covaried, indicating that researchers apply content analysis when researching films. The same rings true in our study in researching sport crisis communication. For example, to assess the effectiveness of a sport persona's crisis communication attempts (i.e., rhetorical self-defense), a researcher might need to identify the frames used by media in reporting those attempts. The fact that framing links to IRT, SCCT, and CC makes sense within the context of this subfield where the majority of the literature is a postreview of rhetorical postures.

Sport Crisis Communication Diffusion Through Journals

Again, we ran our centrality analyses for journals by how theory diffuses through them. As aforementioned, a simple review of the frequency of theories referenced in the journals does not adequately portray the significance of the journal within the subfield. The connections we can make in the network, by theory, reveal the journals that are most actively diffusing the literature across this subfield. Those most central

journals (by degree centrality) *Journal of Sport & Social Issues*, *Public Relations Review*, *Communication & Sport*, *International Review for the Sociology of Sports*, and *Journal of Public Relations Research* reflect the cultural considerations inherent in sport crisis communication.

Those five journals have played the largest role in the knowledge diffusion process of the sport crisis communication subfield but three of these journals especially stand out for this subfield. Leydesdorff (2007) argues that betweenness centrality of a journal is an indicator of the journal's interdisciplinary leanings. The three highest ranked journals for betweenness centrality are *Communication & Sport*, *Journal of Sport & Social Issues*, and *Public Relations Review*. The three journals distinctively link to each other through theoretical frameworks that position *Communication & Sport* in the middle. For example, critical race theory connects *Communication & Sport* and *Journal of Sport & Social Issues*, and *Communication & Sport* and *Public Relations Review* connect through IRT and SCCT.

Ultimately, we see the flow of this subfield's knowledge travel from speech and communication, to public relations and sports, to sport communication and sport media. Therefore, as the subfield emerged, so too did increasingly niche journals, which in turn has allowed these narrower areas of sport communication to thrive. Take, for example, the remarkable growth of this subfield's publications in the journal, *Communication & Sport*, over recent years.

Future Research and Limitations

Pasadeos et al. (2008) noted that the advertising field was "self-sufficient" because the articles published had cited other advertising publications and from one time period to the next, the information scatter had reduced (Zupic & Čater, 2015). Sport crisis communication is centralized by IRT application. We would argue that this does not make the subfield self-sufficient but rather rife with opportunity for growth. As a subfield grows over time, study replications and theoretical extensions become signifiers of a developed "discipline" (Pasadeos et al., 1998, p. 68). We see this beginning to occur in the sport crisis subfield, but the subfield is arguably stalled within retrospective discourse analyses. Although an emergence of empirical research is beginning to occur, we would argue that the overall findings of this study calls for an uptick of empirical research to stretch the current research boundaries of the subfield.

Apologia's (Kruse, 1977, 1981; Nelson, 1984; Ware & Linkugel, 1973) presence among the foundational works suggests a possible third layer of time periods already evident in the subfield. Apologia emerged in the early 1970s and is arguably the foundational scholarship to Benoit's IRT work. Kruse extended apologia to team sports in the early 1980s and Nelson soon followed suit. This could suggest that a replication of this study should examine the 1970s and 1980s as the first time period, comparative to the 1990s and 2000s as a second time period, and the third time period beginning in the 2010s. Therefore, replication should occur in 2030 to map the generational growth and evolution of the subfield.

This study like any social scientific examinations has its limitations. First, we focused solely on peer-reviewed published journal articles. Books and book chapters were not included in the Phase 1 analyses but were included in the foundational analyses in Phase 2. Also, as with any attempted census study, there is no tried and true method to ensure an entire census is captured. Citation data are often messy, too. Some authors misreported the year of publication or the journal or the publisher and this could have resulted in slight errors in our data. Some authors also misspelled cited sources' names. All attempts to clean these data, while still remaining within the strict confines of network data collection, were carried out to minimize such effects. Moreover, negative cites (those comparing two competing theories) and self-citations could result in a manipulation of citation frequency and, therefore, affect the results of the cocitation clustering analysis. For example, self-citations can increase among authors who study new topics or emerging trends due to the lack of maturity of the topic.

Finally, in Hambrick's (2017) sport communication review public relations journals were excluded but our analyses found two public relations journals central to the network of sport crisis communication. Because overlap on some authors and the topic of crisis are present in both networks, Hambrick's study could have demonstrated a lack of representation of sport crisis communication. Although this study fills that gap, a similar exclusion of an important journal or topic could have been unknowingly excluded from this study.

In conclusion, this study depicts the knowledge construction of the sport crisis communication subfield by revealing the intellectual influences of foundational scholars (Chang & Tai, 2005). Our analysis combined network analysis and the bibliometric methods of citation and cocitation analysis, cocitation cluster analysis, and bibliographic coupling to reveal the construction of knowledge of the sport crisis communication subfield. This comprehensive overview of the past 25 years of research, across 25 journals, identifies more wholly the emergence, diffusion, and growth of the subfield. This subfield, which was built upon rhetorical self-defense and has matured into seven key areas of focus, continues to grow and diffuse through scholarly collaborations and emerging trends within a diverse array of sports, communication, public relations, and sociology journals. Theoretically, the subfield is shaped by reputation repair, while reaching to framing, rhetoric, applied public relations practices, and CC perspectives as assessment tools. We argue for the expansion of the subfield through increased empirical scholarship. Overall, the combination of a network analysis of the current literature, paired with several bibliometric methods to identify the foundation of the subfield, pair precisely to identify how a subfield emerges and diffuses over time.

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Notes

1. In this study, we do not use the descriptor “discipline” to identify an area of study. Instead, we chose “field” for a larger structure of collective study (such as communication) and “subfield” to operationalize smaller pockets of study (such as sport crisis communication).
2. Journals ($n = 25$) included in this study: *Communication & Sport*, *Communication Monographs*, *Communication Quarterly*, *Communication Studies*, *Communication Theory*, *Critical Studies in Media*, *International Journal of Sports Management*, *International Journal of Sports Communication*, *International Journal of Strategic Communication*, *International Review for the Sociology of Sports*, *Journal of Communication*, *Journal of Contingencies & Crisis Management*, *Journal of Intercollegiate Sports*, *Journal of Public Relations Research*, *Journal of Sport & Social Issues*, *Journal of Sports Management*, *Journal of Sports Media*, *Journal of the Philosophy of Sports*, *Journalism & Mass Communication Quarterly*, *Mass Communication and Society*, *Media Culture and Society*, *Public Relations Review*, *Sociology of Sports Journal*, *Sports Management Review*, and *Sports, Ethics, and Philosophy*.
3. A full list of citations for these 142 articles can be made available upon request.
4. Two criteria were required for a mention of a theory (or theories) in an article: (a) the theory had to be referred to or named as a theory, theoretical framework, or theoretical perspective; and (b) the mentioned theory, framework, or perspective must have also included a scholarly citation of the theory.
5. The citation lists were copied and pasted directly from the article and, therefore, not assessed for reliability.
6. The two-mode centrality calculation “normalizes the scores against the maximum possible scores in an equivalently sized connected two mode network and hence provides appropriately scaled measures” (Borgatti et al., 2002, Para 2, two-mode centrality).

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