Productivity and Coauthorship in *JPSSM*: A Social Network Analysis

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Abstract:

This paper examines the key individual contributors and institutional contributors to *JPSSM,* covering 628 articles written by 761 authors since the journal's inception in fall/winter 1980 until its fall 2009 issue. The nature and the dynamics of the coauthor networks of the journal's leading individual contributors are further investigated. Results indicate that leading contributors to JPSSM are also major contributors to other academic outlets that have published sales research. These authors possess at least one common trait: they effectively network and collaborate with other sales scholars. In addition, their coauthor networks change over time, both in membership and in structure. For the most, coauthor networks evolve by reducing some members and bringing in new ones. In many cases, however, membership change is accompanied by a structural change, usually from a fragmented network to a dense network. Research findings have important implications for understanding the development of sales knowledge and the contribution of sales scholars and their institutions. University administrators can also use the findings of this paper as a benchmark to define "reasonable" publication expectations for faculty with an interest in sales management research.

Keywords: sales management research | academic coauthorship | social network analysis

Article:

The *Journal of Personal Selling & Sales Management (JPSSM)* celebrates 30 years of service to the sales field. Since its first fall/winter 1980 issue, there have been considerable advancements in the field, as well as a substantial growth in the reach and impact of the journal. We believe that it is a good time to look back at the journal's history and investigate the role that authors and their organizations have played in this process.

Recently, the topic of research productivity has gained growing attention from scholars. Part of the reason is that research productivity plays a major role in the determination of tenure, promotion, and compensation decisions at academic institutions (Seggie and Griffith 2009). As

De Rond and Miller (2005) assert, business schools are often driven by a "publish or perish" philosophy that ultimately defines resource allocation and the career fate of their scholars. Hill (2008) also posits that tenure decisions for marketing scholars are primarily driven by their publications in both the "elite" discipline journals and "top-notch" specialty journals.

JPSSM is regarded as a top journal devoted to sales research (Hult, Neese, and Bashaw 1997). Given its importance, previous researchers have examined research productivity in *JPSSM.* Swan, Powers, and Sobczak (1991), for example, identified the leading contributors to *JPSSM* in the decade of the 1980s. Focusing on the same period but extending the outlets from *JPSSM* to a broader scope, Bush and Grant (1991) identified the prolific scholars of sales research published in the *Journal of Marketing, Journal of Marketing Research,* and *Industrial Marketing Management.* More recently, Moncrief, Marshall, and Watkins (2000) analyzed research productivity from 1993 to 1997, focusing on *JPSSM* and 15 other journals that had published selling and sales management topics. A common finding of these studies is that there is a growing tendency for coauthorship, especially for three or more authors in a paper. This finding is intriguing; however, many questions still remain unanswered. This paper focuses on the history of publishing in *JPSSM* to address a few of these questions: (1) the extent to which coauthoring affects research productivity in *JPSSM,* (2) the nature of *JPSSM* coauthor networks, (3) the relationship between networking and article citations, and (4) how *JPSSM* coauthor networks have evolved over the past 30 years. In addition, more than a decade has now passed since the last *JPSSM* authorship productivity analysis; a comprehensive and updated examination is warranted. As Ford and Merchant assert, ten years is "literally an academic lifetime for many" (2008, p. 70).

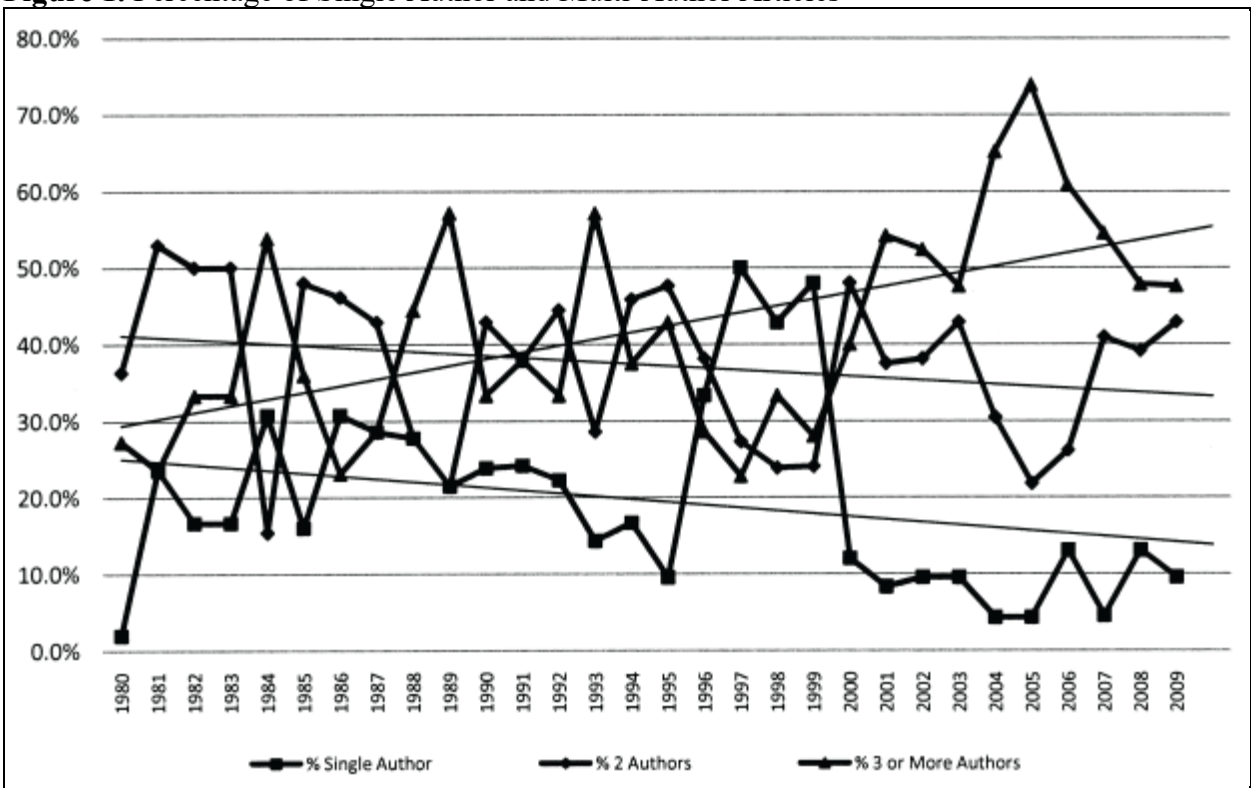
To meet this end, our study examines all 628 articles published in *JPSSM* from its first appearance in fall/winter 1980 through the fourth issue of 2009. This study consists of two intercorrelated components. The first component centers on productivity analyses at both the individual level and the institutional level. Building on the findings of the productivity analyses, the second component focuses on the nature and the dynamics of the journal's coauthorship structure among all authors who have ever been published at least once in *JPSSM* since its first appearance 30 years ago. Results indicate that the most prolific scholars in *JPSSM* are also major contributors to other academic outlets that have published sales articles. In addition, results indicate that a coauthor network is an important element of publication productivity in terms of number of articles and article citations. The research findings have important implications for understanding the development of sales knowledge and the contribution of sales scholars and their institutions. University administrators can also use the findings of this paper as a benchmark to define realistic publication expectations for faculty with an interest in sales management research.

JPSSM INDIVIDUAL AND INSTITUTIONAL CONTRIBUTORS

Publication in leading marketing journals is the single most important determinant of academic promotions (McAlister 2005). Business schools care not only about the past publication success of their faculty but also, and more importantly, about their capability to sustain a high level of research productivity. This is due to the fact that business school rankings are highly correlated with their faculty research performance (Siemens et al. 2005). Both scholars and college

administrators are likely interested in updated data on leading contributors to academic journals such as *JPSSM* and their research productivity. Findings may help sales researchers understand some "secrets" of leading contributors to *JPSSM* and also provide a benchmark for administrators to define publication standards for faculty with an interest in sales research.

Figure 1. Percentage of Single Author and Multi-Author Articles



	1980s		1990s		2000s		Entire Period	
	Number	**Percent**	**Number**	**Percent**	**Number**	**Percent**	**Number**	**Percent**
Number of Papers with 1 Author	41	25.2	67	28.0	20	8.8	128	20.4
Number of Papers with 2 Authors	65	39.9	86	36.0	83	36.7	234	37.3
Number of Papers with 3 or More Authors	57	35.0	86	36.0	123	54.4	266	42.4
Number of Papers with 4 or More Authors	7	4.3	16	6.7	43	19.0	66	10.5
Total	163		239		226		628	
Name Appearances	321		525		616		1,462	
Name Appearances per Paper	1.97		2.20		2.73		2.23	

In this study, we analyzed full-length papers and research notes published in *JPSSM* from fall/winter 1980 to fall 2009. Consistent with prior research (e.g., Ford and Merchant 2008), editorial essays and book reviews were excluded from the analysis, yielding a total of 628 papers written by 761 authors. The information about these publications—including authorship,

coauthorship, institutional affiliations, and publication dates—were manually extracted for further analysis.[1]

There were 1,462 author name appearances from 1980 to 2009, rending an average of 2.33 author appearances per paper. Data were also divided into three time periods—1980s, 1990s, and 2000 to 2009. The average number of coauthors per paper for each period was 1.97, 2.20, and 2.73, respectively, exhibiting a substantial increase over time. To be more specific, there is a decreasing trend in both single-authored and two-authored publications and an increase in publications with three or more authors, as shown in Figure 1. This is in line with previous research indicating that there is a rising tendency of collaboration in sales research (e.g., Bush and Grant 1991; Swan, Powers, and Sobczak 1991). In fact, the increase in coauthorship is not a unique phenomenon in the sales area. In almost all scientific disciplines, there is a growing movement toward research collaboration, as reflected by two or more authors in a published paper (Moody 2004).

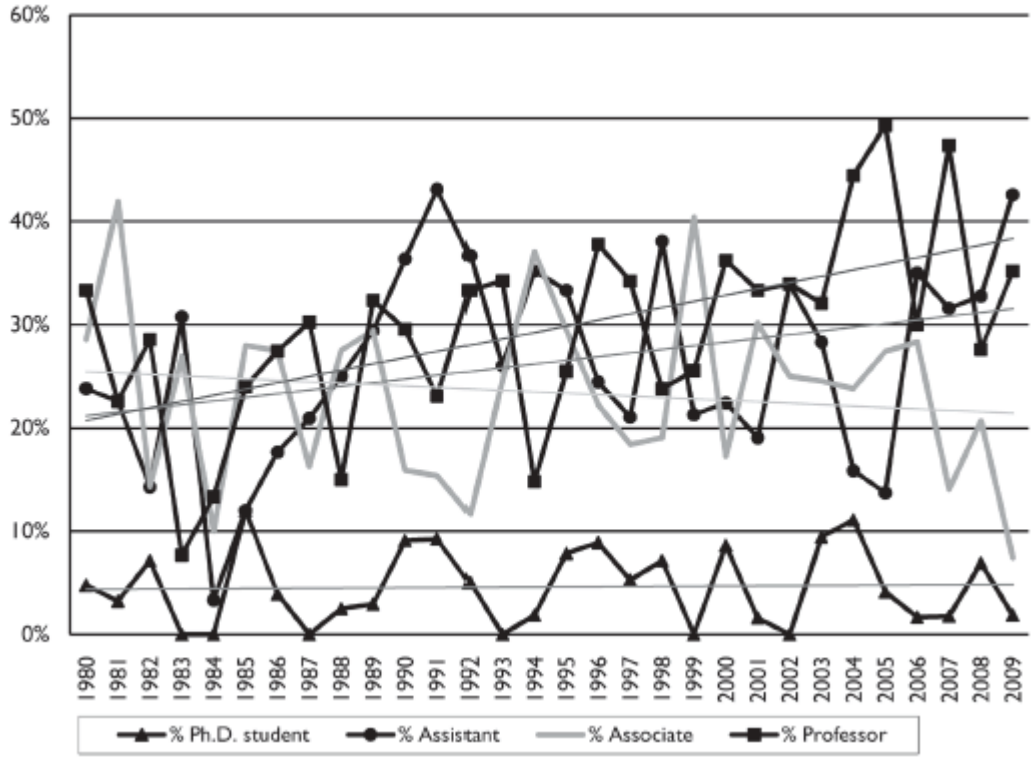
Academic Rank of Authors

Figure 2 shows that there is an increasing trend in publications from full professors. Full professors published over 30 percent of all *JPSSM* papers, more than 37 percent of which appeared in the 2000s. In contrast, the trend in publications from Ph.D. students is relatively stable, with a 3.4 percent contribution in the 1980s, a 5.1 percent in the 1990s, and 4.7 percent in the 2000s. Relatively stable trends also emerged for both assistant and associate professors with an overall contribution of 27.1 percent and 23.9 percent, respectively. This is comparable to findings from other specialty journals. For instance, Ford and Merchant (2008) examined publications that appeared in the *Journal of Advertising, Journal of Advertising Research,* and *Journal of Current Issues and Research in Advertising* from 1997 to 2006. Their study found that 26.5 percent of the publications came from assistant professors, 24.2 percent from associate professors, and 34.4 percent from full professors. A comparable distribution is also found in Sprott and Miyazaki's (2002) analysis of research published in the *Journal of Public Policy & Marketing (JPPM).* Findings from their 20-year analysis of *JPPM* indicate that full professors contributed to 29.5 percent of the articles, followed by associate professors (25.3 percent), assistant professors (23.4 percent), and doctoral students (6.5 percent).

Figure 2 also shows that over 93 percent of *JPSSM* authors are affiliated with U.S. universities. However, the number of authors from overseas schools has been increasing. For example, only seven (2.6 percent) authors were affiliated to non-U.S. universities in the 1980s, compared to 26 (5.3 percent) in the 1990s, and 51 (8.8 percent) in the third time period. This change clearly indicates that *JPSSM* is expanding its global authorship presence.

[1] A manual extraction of data was necessary because several errors were found in EBSCO, the database hosting *JPSSM.* For example, John E. Swan appears as "Swan" and "Swann." In one paper, "Greg W. Marshall" appears as "Greg W. Mairshall." The paper "Why Do Salespeople Fail?" is shown in the database twice; it appears with Mark W. Johnston as the first author and then again with David L. Kurtz as the first author.

Figure 2. Percentage of Authorship by Academic Rank



	1980s		1990s		2000s		Entire Period	
Author Ranking	**Number**	**Percent**	**Number**	**Percent**	**Number**	**Percent**	**Number**	**Percent**
Ph.D. Student	11	3.4	27	5.1	29	4.7	67	4.6
Assistant Professor	63	19.6	168	32.0	165	26.8	396	27.1
Associate Professor	90	28.0	123	23.4	136	22.1	349	23.9
Professor	72	22.4	148	28.2	230	37.3	450	30.8
Industry	23	7.2	25	4.8	13	2.1	61	4.2
Others (e.g., Chairs, Directors, Lecturers)	62	19.3	34	6.5	43	7.0	139	9.5
Total Name Appearances	321		525		616		1,462	
Number of U.S. Universities	259	97.4	467	94.7	531	91.2	1,257	93.7
Number of Overseas Universities	7	2.6	26	5.3	51	8.8	84	6.3
Total Academic Institutions	266		493		582		1,341	

Table 1. Contributions by Author and Period

1980s			1990s			2000s		
Author	**n1**	**n2**	**Author**	**n1**	**n2**	**Author**	**n1**	**n2**
Dubinsky, A.J.	9	4.50	Chonko, L.B.	12	5.50	Jaramillo, F.	13	4.58
Swan, J.E.	8	3.00	Shepherd, C.D.	9	4.50	Chonko, L.B.	11	3.03
Collins, R.H.	6	6.00	Jolson, M.A.	8	3.90	Jones, E.	11	3.83
Futrell, C.M.	4	1.92	Ramsey, R.P.	8	4.32	Marshall, G.W.	11	3.62
Gibson, C.K.	3	1.16	Sharma, A.	8	5.83	Dixon, A.L.	9	2.75
Ingram, T.N.	4	1.67	Tanner, J.F., Jr.	8	4.67	Boles, J.S.	8	2.33
LaForge, R.W.	4	1.50	Sager, J.K.	7	4.67	Locander, W.B.	7	2.12
Moncrief, W.C.	4	1.25	Fine, L.M.	7	3.00	Evans, K.R.	6	2.17
Schlacter, J.L.	4	1.50	Wotruba, T.R.	6	3.00	Loe, T.W.	6	1.78
Bellenger, D.N.	3	1.00	Comer, L.B.	5	2.08	Menguc, B.	6	3.33
Chonko, L.B.	3	1.83	Dubinsky, A.J.	5	1.90	Mulki, J.P.	6	2.17
Cravens, D.W.	3	1.08	Johnston, M.W.	5	1.42	Piercy, N.F.	6	2.33
Evans, K.R.	3	1.33	Marshall, G.W.	5	2.50	Cravens, D.W.	5	1.58
Harris, C.E., Jr.	3	1.33	Weeks, W.A.	5	1.83	Flaherty, K.E.	5	2.08
Jolson, M.A.	3	1.83	Darmon, R.Y.	4	4.00	Lassk, F.G.	5	1.66
Morgan, F.W.	3	2.00	Grant, E.S.	4	2.00	Leigh, T.W.	5	2.03
Patton, W.E.	3	2.00	Swan, J.E.	4	1.49	Moncrief, W.C.	5	1.37
Sager, J.K.	3	1.08	Boles, J.S.	3	1.00	Roberts, J.A.	5	1.25
Skinner, S.J.	3	1.00	Brown, G.	3	0.83	Schwepker, C.H., Jr.	5	2.83
Wotruba, T.R.	3	2.33	Bush, A.J.	3	1.50	Bhuian, S.N.	4	1.45
			Castleberry, S.B.	3	1.50	Ahearne, M.	4	1.03
			DeCarlo, T.E.	3	0.99	Barksdale, H.C., Jr.	4	1.08
			Futrell, C.M.	3	0.92	Bellenger, D.N.	4	1.08
			Gentry, J.W.	3	0.91	Gassenheimer, J.B.	4	1.67
			Hair, J.F.	3	0.91	Grisaffe, D.B.	4	1.50
			Honeycutt, E.D., Jr.	3	1.00	Jackson, D.W., Jr.	4	1.17
			Jobber, D.	3	1.33	Johnston, W.J.	4	1.25
			McNeilly, K.M.	3	1.08	Leach, M.P.	4	1.67
			Morris, M.H.	3	0.87	Porter S.S.	4	1.83
			Mowen, J.C.	3	1.17	Weeks, W.A.	4	1.45
			Russ, F.A.	3	1.08	Zoltners, A.A.	4	1.25
			Swenson, M.J.	3	1.25	Amyx, D.	3	0.95
			Weilbaker, D.C.	3	2.00	Anderson, E.	3	1.17
			Yammarino, F.J.	3	1.50	Anderson, R.E.	3	1.00
						Arnold, T.J.	3	0.91
						Brashear, T.G.	3	0.75
						Brown, S.P.	3	1.50
						Carrillat, F.A.	3	1.00
						Comer, L.B.	3	1.33
						Dubinsky, A.J.	3	1.08
						Good, D.J.	3	1.50
						Harris, E.G.	3	1.00
						Ingram, T.N.	3	0.87
						Johnson, J.T	3	0.91
						Kidwell, B.	2	0.83
						Landry, T.D.	3	0.83
						Liu, A.H.	3	1.33
						McFarland, R.G.	3	1.83
						Pullins, E.B.	3	1.08
						Tanner, J.F., Jr.	3	0.95
						Valentine, S.	3	2.00
						Weitz, B.A	3	0.92
						Widmier, S.M.	3	1.00
						Wood, J.A.	3	1.58

	1980s	1990s	2000s	Total
Total Name Appearances	321	525	616	1,462
Total Number of Papers	163	239	226	628
Authors with 3 or More Papers	20	34	54	108
Appearances, 3 or More	79	161	250	490
Appearances 3 or More/ Total Appearances (in percent)	24.61	30.67	40.58	33.52
Average Coauthor	2.20	2.18	3.05	2.48
Average Coauthor (3 or more)	2.01	2.11	2.79	

Note: n1 is the total number of papers; n2 is the number of papers weighted by coauthors.

Individual Contributions

Table 1 shows authors with three or more papers in the 1980s, the 1990s, and 2000s. Our findings are consistent with research in other leading marketing journals which indicate that few authors are able to publish three or more articles over the period of a decade (e.g., Powers et al. 1998; Sprott and Miyazaki 2002). In *JPSSM,* only 20 authors had three or more papers published in the 1980s. The names of these authors appeared 79 times from 1980 to 1989, which represents 24.6 percent of the total number of name appearances. The number of authors with three or more papers published in the 1990s increases to 34. These authors appeared 161 times in the 1990s, which corresponds to 30.7 percent of the total number of name appearances. During the third time period, there are 54 authors with three or more papers. The names of these authors appeared 250 times (40.6 percent of the total number of name appearances). These statistics clearly indicate an increase in the ratio of published research that comes from the most prolific *JPSSM* scholars.

Table 1 also shows that there are significant changes in authorship rankings over time. For instance, only 7 of the 20 authors that appeared as high performers (authors with three or more papers) in the 1980s also appeared in the 1990s. The 1990s thus brought 27 newcomers who emerged as new sales scholarship "powerhouses." Similarly, only 8 of the 34 names that appeared in the 1990s as high performers also appeared in the third period. Actually, most of the top contributors in the 2000s were newcomers. Only 12 of the 43 names that appeared in this period also appeared in the 1980s or 1990s.

The "top" contributors in these three periods published 9 (Alan J. Dubinsky), 12 (Lawrence B. Chonko), and 13 (Fernando Jaramillo) papers. This productivity is comparable with top-performing authors in other leading specialty journals. For instance, Sprott and Miyazaki (2002) report that Fred Morgan was the top contributor in *JPPM* from 1982 to 1992 with 7 published articles. Ronald P. Hill was the top contributor of *JPPM* in the following decade with 11 articles. Similarly, from 1997 to 2006, Don E. Schultz was the top contributor to the *Journal of Advertising Research* with 10 publications and Barbara B. Stern, Charles R. Taylor, and Michael S. LaTour were the top contributors to the *Journal of Advertising* with 6 publications each (Ford and Merchant 2008).

It is worth noting that only two authors kept a record of three or more publications in *JPSSM* in each of the three time periods—Lawrence B. Chonko and Alan J. Dubinsky. As shown in Table 2, these authors are the top-one and top-two *JPSSM* contributors over the past 30 years, with a total of 25 and 17 papers, respectively. Table 2 also shows that only 17 of the 761 authors who have published in *JPSSM* have 10 papers or more in this journal, accounting for 2.23 percent of its entire author pool. We also collected all sales articles published by these 17 authors in other important outlets that publish sales research. Plouffe, Williams, and Wachner's (2008) article was used as the baseline, in which the number of sales articles published by 16 key journals over a period of 1983 to 2006 was listed and examined. As presented in Table 3, the 17 most prolific *JPSSM* authors contributed to 23.4 percent of all sales articles published in the key marketing journals over the 24-year period.[2] A further breakdown indicated that these 17 authors wrote

[2] Only sales articles were included in this analysis. These authors have also published a significant number of non-sales-related topics in these journals.

23.3 percent of all the articles published in the top 6 journals (i.e., *Journal of Marketing, Journal of Marketing Research, Journal of Consumer Research, Marketing Science, Journal of the Academy of Marketing Science,* and *Journal of Retailing*), accounting for 50 percent, 40.5 percent, and 18.2 percent of the sales articles published at *Journal of Consumer Research, Journal of the Academy of Marketing Science,* and *Journal of Marketing,* respectively. Therefore, it is conservative to say that the most prolific scholars in *JPSSM* are key contributors to the sales management research field.

Institutional Contributions

Table 4 shows institutions with 4 or more papers in the 1980s, the 1990s, and the 2000s. Only 23 institutions had 4 or more papers published in the 1980s. The names of these schools appeared 150 times in the 1980s, which corresponds to 49.2 percent of the total number of appearances. On average, these schools had an average of 3.91 authors publishing in *JPSSM.* The top institutional contributors to *JPSSM* in the 1980s were the University of Alabama (15 papers), Arizona State University (13 papers), and Texas Christian University (13 papers).

In the 1990s, 43 institutions had 4 or more papers in *JPSSM.* The names of these schools appeared 327 times in *JPSSM,* or 62.5 percent of the total number of appearances. The ranking of schools had significant changes in comparison with the prior period. For instance, the top three institutions in the 1990s were Baylor University (24 papers), University of South Florida (13 papers), and University of Miami tied with University of Tennessee with 12 papers each. Also, 46 percent of the schools that published 4 or more papers in the 1980s no longer appeared on the 1990s list. The 1990s contained 30 "new" names with 2 of them making the top-three list (University of South Florida and University of Miami). The average number of faculty publishing in schools with 4 or more appearances is 4.74.

From 2000 to fall 2009, 39 institutions had 4 or more publications in *JPSSM.* The names of these institutions appeared 65.3 percent of the time. This implies that only 35.7 percent of the published papers came from authors not affiliated with these schools. The average number of faculty affiliated with the 39 top-institutional contributors was 4.64. Again, the list of top-performing schools significantly changed from the previous decade. Only Baylor University remains as the top contributing institution in the period with 30 papers. Yet the second and the third place in terms of number of papers correspond to Georgia State University (22 papers) and University of Houston (17 papers), respectively.

Table 5 presents the institutions with 10 or more publications over *JPSSM* 's 30-year service from 1980 to 2009. Of all the 324 schools that have contributed to *JPSSM,* only 29 schools are on the list. The names of these 29 schools appeared 582 times in *JPSSM* over its three-decade history, accounting for 42.8 percent of the total appearances. The top institutional contributor to *JPSSM* was Baylor University (59 times), followed by University of Alabama (37 times) and Texas Christian University (34 times).

Table 2. *JPSSM* Authors with 10 or More Papers from 1980 to 2009

Ranking	Name	Number of Papers	End Year	Start Year	Annual Productivity	Ph.D. Grant Institution	Current Affiliation
1	Chonko, L.B.	25	2009	1983	0.96	University of Houston	University of Texas at Arlington
2	Dubinsky, A.J.	17	2009	1980	0.59	University of Minnesota	Purdue University
3	Marshall, G.W.	16	2009	1992	0.94	Oklahoma State University	Rollins College
4	Sager, J.K.	13	2009	1980	0.45	Texas A&M University	University of North Texas
4	Swan, J.E.	13	2009	1987	0.59	Indiana University	University of Alabama at Birmingham
4	Jones, E.	13	2009	1996	1.00	Texas A&M University	Louisiana State University
4	Jaramillo, F.	13	2009	2003	2.17	University of South Florida	University of Texas at Arlington
5	Tanner, J.F., Jr.	12	2009	1986	0.52	University of Georgia	Baylor University
6	Wotruba, T.R.	11	2009	1983	0.42	University of Wisconsin	San Diego State University
6	Jolson, M.A.	11	2009	1995	0.79	University of Maryland	University of Maryland
6	Shepherd, C.D.	11	2009	1990	0.58	University of Tennessee	Kennesaw State University
6	Boles, J.S.	11	2009	1991	0.61	Louisiana State University	Georgia State University
7	Cravens, D.W.	10	2009	1981	0.36	Indiana University	Texas Christian University
7	Evans, K.R.	10	2009	1982	0.37	University of Colorado	University of Oklahoma
7	Moncrief, W.C.	10	2009	1996	0.77	Louisiana State University	Texas Christian University
7	Weeks, W.A.	10	2009	1988	0.48	Indiana University	Baylor University
7	Sharma, A.	10	2009	1990	0.53	University of Illinois at Urbana–Champaign	University of Miami
Total		214					

Table 3. Number of Sales Articles Published in Other Outlets Written by the More Prolific *JPSSM* Authors Between 1983 and 2006

Ranking	Name	*JM*	*JMR*	*JCR*	*MktSci*	*JAMS*	*JR*	*JAP*	*JBR*	*IMM*	*IJRM*	*ML*	*JBIM*	*EJM*	*P&M*	*JMTP*	Total
1	Chonko, L.B.	0	0	0	0	1	0	0	2	1	0	0	1	0	0	1	6
2	Dubinsky, A.J.	2	1	1	0	5	0	0	6	6	0	0	2	2	0	0	25
3	Marshall, G.W.	0	0	0	0	0	0	0	4	5	0	0	2	0	1	0	12
4	Sager, J.K.	0	0	0	0	3	0	0	3	4	0	0	0	0	1	0	11
4	Swan, J.E.	1	0	1	0	1	0	0	2	2	0	0	0	0	0	0	7
4	Jaramillo, F.	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2
4	Jones, E.	0	0	0	0	0	0	1	2	4	0	0	1	0	0	1	9
5	Tanner, J.F., Jr.	0	0	0	0	0	0	0	0	4	0	0	0	0	0	1	5
6	Wotruba, T.R.	1	1	0	0	3	0	0	0	2	0	0	0	0	0	0	7
6	Jolson, M.A.	1	0	0	0	0	0	0	1	3	0	0	0	0	0	0	5
6	Shepherd, C.D.	0	0	0	0	0	0	0	0	0	0	0	1	0	1	2	4
6	Boles, J.S.	1	0	0	0	4	0	0	3	0	1	0	4	0	0	2	14
7	Cravens, D.W.	2	0	0	0	4	0	0	2	3	0	0	1	6	0	0	19
7	Evans, K.R.	2	0	0	0	3	0	0	1	1	0	0	0	0	0	2	9
7	Moncrief, W.C.	0	1	0	0	4	0	0	4	6	0	0	1	2	0	0	18
7	Weeks, W.A.	0	0	0	0	1	0	0	1	2	0	0	0	0	0	0	4
7	Sharma, A.	0	0	0	0	1	2	0	4	5	0	0	0	0	1	0	13
Total from the 17 Authors		10	3	2	0	30	2	1	37	48	1	0	13	10	4	9	170
All Sales Articles		55	37	4	16	74	16	19	75	179	24	12	104	39	30	44	728

Notes: JM = Journal of Marketing; JMR = Journal of Marketing Research; JCR = Journal of Consumer Research; MktSci = Marketing Science; JAMS = Journal of the Academy of Marketing Science; JR = Journal of Retailing; JAP = Journal of Applied Psychology; JBR = Journal of Business Research; IMM = Industrial Marketing Management; IJRM = International Journal of Research in Marketing; ML = Marketing Letters; JBIM = Journal of Business & Industrial Marketing; EJM = European Journal of Marketing; P&M = Psychology & Marketing; JMTP = Journal of Marketing Theory and Practice.

Table 4. Institutions with 4 or More Papers

1980s				1990s				2000s			
Institution	n1	n2	n3	Institution	n1	n2	n3	Institution	n1	n2	n3
University of Alabama	15	4.92	7	Baylor University	24	11.32	6	Baylor University	30	8.96	7
Arizona State University	13	5.67	6	University of South Florida	13	6.50	7	Georgia State University	22	6.40	6
Texas Christian University	13	4.17	7	University of Miami	12	7.67	5	University of Houston	17	5.70	7
University of Georgia	10	5.83	8	University of Tennessee	12	5.67	5	University of Cincinnati	15	5.33	6
University of Kentucky	9	4.00	4	Iowa State University	11	4.33	9	Oklahoma State University	14	5.67	9
Texas Tech University	7	2.67	6	Old Dominion University	11	4.00	10	University of Texas at Arlington	14	6.17	3
Appalachian State University	6	3.50	3	University of North Texas	11	5.67	4	Texas Christian University	12	4.14	3
Memphis State University	6	2.00	4	University of Alabama	10	3.83	7	University of Alabama	12	4.33	10
Texas A&M University	6	2.50	3	University of Maryland	10	5.23	3	University of South Florida	12	4.25	9
University of Western Ontario	6	1.75	4	Georgia State University	9	3.33	8	Northeastern University	11	3.58	2
Baylor University	5	3.17	3	Louisiana State University	9	2.75	6	Arizona State University	10	2.83	7
Oklahoma State University	5	1.67	4	Louisiana Tech University	9	2.67	7	Louisiana Tech University	10	4.40	4
Oregon State University	5	5.00	1	Texas A&M University	9	3.17	7	Indiana University	9	4.10	8
San Diego State University	5	4.33	2	Texas Christian University	9	3.17	7	University of Georgia	9	3.78	7
University of Akron	5	2.66	4	University of Wisconsin	9	4.17	8	University of Kentucky	9	3.92	6
Wayne State University	5	2.33	3	Indiana University	8	1.96	6	University of Missouri	8	2.67	4
Western Kentucky University	5	2.00	4	Ohio State University	8	2.33	4	University of Toledo	8	2.67	5
Indiana University	4	2.33	3	University of Kentucky	8	4.17	4	Jacksonville University	7	1.78	1
Marquette University	4	2.00	3	Brigham Young University	7	2.58	4	Loyola Marymount University	7	3.00	2
Pennsylvania State University	4	1.67	3	Clemson University	7	2.50	6	Purdue University	7	2.75	3
Southern Methodist University	4	2.50	3	University of Central Florida	7	2.10	5	Rollins College	7	2.28	3
University of Maryland	4	2.33	2	University of Georgia	7	2.86	6	University of North Texas	7	2.83	6
Virginia Polytechnic Institute	4	1.83	3	University of North Carolina	7	2.50	6	Western Michigan University	7	1.97	7
				Florida International University	6	2.33	6	Wichita State University	7	2.67	3
				Georgia Southern University	6	2.83	5	Colorado State University	6	1.78	4
				Memphis State University	6	2.83	5	Drexel University	6	2.00	4
				Northern Illinois University	6	2.83	6	East Carolina University	6	2.00	5
				Oklahoma State University	6	2.33	4	Mississippi State University	6	2.17	5
				University of Nebraska	6	1.92	4	University of North Carolina	6	2.87	6
				University of Texas at Austin	6	1.81	4	Brock University	5	2.33	2
				Purdue University	5	1.58	1	Clemson University	5	1.42	4
				San Diego State University	5	3.50	1	Grand Valley State University	5	2.17	2
				State University of New York	5	2.08	3	Illinois State University	5	2.67	3
				University of Akron	5	3.00	3	Kennesaw State University	5	1.40	3
				University of Cincinnati	5	1.67	2	Texas Tech University	5	2.50	4
				University of Minnesota	5	2.33	3	University of Massachusetts	5	1.75	3
				Arizona State University	4	2.00	2	North Dakota State University	4	1.67	3
				Bowling Green University	4	2.70	3	University of Akron	4	1.33	3
				ESSEC-Paris-Cergy	4	4.00	1	University of Warwick	4	1.50	2
				Illinois State University	4	2.00	3				
				Metropolitan State University	4	1.70	1				
				Southern Methodist University	4	1.33	4				
				Suffolk University	4	1.83	3				

	1980s	1990s	2000s	Entire Period
Total Name (Institutional) Appearances	305	523	533	1,361
Total Number of Papers	146	241	202	589
Institutions with 4 or More	23	43	39	105
Appearances, 4 or More:	150	327	348	825
(Appearances, 4 or more/Total Appearances) (in percent)	49.2	62.5	65.3	60.6
Total Appearances / Number of Authors (4+):	1.67	1.60	2.77	1.74

Notes: Institutional affiliation was not reported in 24 cases that correspond to 1983 (issue 2) and 1984 (issues 1 and 2). n1 is the total number of papers, n2 is the number of papers weighted by coauthors, and n3 is the number of faculty who published in *JPSSM*.

Table 5. Institutions with 10 or More Papers from 1980 to 2009

Ranking	Institutions	Number of Articles	End Year	Start Year	Annual Productivity
1	Baylor University	59	2009	1984	2.27
2	University of Alabama	37	2006	1980	1.37
3	Texas Christian University	34	2008	1981	1.07
4	Georgia State University	30	2008	1983	1.15
5	Arizona State University	27	2008	1980	0.93
6	University of Kentucky	26	2007	1981	0.96
7	University of Georgia	26	2009	1980	0.87
8	University of South Florida	25	2007	1990	1.39
8	Oklahoma State University	25	2009	1980	0.83
9	Indiana University	21	2005	1981	0.84
10	University of Cincinnati	20	2008	1980	0.69
11	University of North Texas	18	2008	1988	0.86
12	Louisiana Tech University	17	2006	1990	1.00
12	University of Houston	17	2008	1981	0.61
13	Texas A&M University	15	1998	1984	1.00
14	University of Akron	14	2004	1986	0.74
14	University of Maryland	14	2000	1985	0.88
14	University of Texas at Arlington	14	2009	2003	2.00
15	University of North Carolina	13	2006	1980	0.48
16	Texas Tech University	12	2005	1983	0.52
16	Memphis State University	12	1994	1981	0.86
16	University of Miami	12	2007	1990	0.67
16	University of Tennessee	12	1997	1981	0.71
16	Clemson University	12	2006	1991	0.75
16	Purdue University	12	2002	1995	1.50
17	Iowa State University	11	2007	1981	0.41
17	Old Dominion University	11	2000	1991	1.10
17	Northeastern University	11	2008	1986	0.48
18	San Diego State University	10	2002	1983	0.50
Total		567			

JPSSM COAUTHOR NETWORKS

In almost all scientific disciplines, the tendency for coauthorship is growing (Moody 2004). Coauthorship is an important manifestation of intellectual collaboration in scientific research and stems from researchers' desires to increase their scientific productivity, both in terms of increased quality and increased quantity (Wright, Clark, and Floyd 2006). Evidently, if all authors are active contributors to a paper, the time and effort each author needs to spend on that particular paper will be much less than if it is done by a solo author. In other words, coauthoring allows researchers to participate in more research projects, leading to more publication possibilities. In addition to the benefit of increased quantity, coauthor networks can also increase the quality of a scientific output because collaborators gain additional information or create synergy through knowledge sharing (Oh, Choi, and Kim 2005). Obviously, the enhanced quality of collaboration will also depend on the complexity of the research project and the complementarities of the skills of multiple researchers.

The enhanced quality that collaboration can bring is also evident by the fact that coauthoring increases the probability of a paper being accepted for journal publication (see Bayer and Smart 1991; Laband and Tollison 2000). This highlights the importance of studying coauthor networks. Following Oh, Choi, and Kim (2005), we examine the *JPSSM* authorship network from a social capital perspective. The identification and analysis of *JPSSM* coauthorship networks can advance our understanding of knowledge generation and dissemination in the sales discipline.

Social capital is broadly defined as

> the sum of the resources, actual or virtual, that accrue to an individual or a group by virtue of possessing a durable network of more or less institutionalized relationships of mutual acquaintance and recognition. (Bourdieu and Wacquant 1992, p. 119)

It is widely accepted in the literature that individual success is a result of both personal attributes and social capital accumulated in their respective networks (Burt 1992, 1997; Coleman 1988; Granovetter 1973). There are two views regarding what represents social capital. One is that social capital is manifested by network closure—that is, the extent to which nodes in a network are highly connected to each other (Coleman 1988). This perspective focuses on the strength of relationships and density of the social network. The underlying rationale is that social capital is more effectively developed within a network than between networks (Oh, Choi, and Kim 2005). Translating this view to the *JPSSM* coauthorship context in our study, productivity is a result of knowledge sharing within a dense or cohesive network in which there are many direct and indirect ties among the network members. Thus far, little research has been conducted to examine how network closure may affect academic performance. In a pioneering study on the coauthor networks of the top-four information system journals, Oh, Choi, and Kim (2005) predicted a positive relationship between network closeness and a researcher's citation record, but this prediction was not supported by their data.

An alternative view holds that social capital is manifested by structural holes, defined as "disconnections between nodes" or "a relationship of non-redundancy between two contacts" (Burt 1992, p. 18). This view emphasizes the position of the actor within the network, rather than the strength and density of the actor's relations (Burt 1992). Closed or dense networks often have redundancies (i.e., overlapping sources of information), which reduces the value of social capital. In closed networks, opportunistic behavior (i.e., shirking, lack of collaboration) among the members of a strongly connected network is suppressed and punished (Oh, Choi, and Kim 2005). However, loosely connected networks with high levels of structural holes have few constraints. Individual actors in such networks are free to collaborate with actors in other network segments. Fresh insights and innovative ideas can be developed in such between-network collaboration and boost researchers' academic performance. In line with this reasoning, Oh, Choi, and Kim (2005) in fact found a positive relationship between structural holes and researchers' citation record.

In the present study, we propose that both network closure and structural holes are important elements of social capital to drive sales researchers' productivity in terms of number of *JPSSM* publications. To investigate this proposition, we conducted a series of social network analyses to investigate coauthor networks of all scholars who have been published at least once in *JPSSM* over the past 30 years. These authors were linked by an author-by-author *sociomatrix* (Kenny,

Kashy, and Cook 2006), which contains names of authors and the number of coauthored papers between them. For instance, a "2" was entered on the cell that links "A.J. Dubinsky" with "T.N. Ingram" as they coauthored 2 *JPSSM* papers. A "0" was entered on the cell that links "A. Dubinsky" with "J.E. Swan" because they did not coauthor any *JPSSM* papers. For the purpose of network analysis, the author-by-author matrix is symmetrized and transformed into an undirected relationship matrix, which is called *adjacency matrix* in network terms.

Coauthor networks were then identified and analyzed using the UCINET 6 software (Borgatti, Everett, and Freeman 2002). The analysis consisted of three steps. First, an examination of the full network for all authors was conducted. To better understand the role that social capital plays in individuals' research performance, we further conducted a regression analysis using network closure and structural holes as the predictors and authorship productivity as the criterion. Second, we identified the key nodes (i.e., centers of information) and analyzed their ego networks in more depth. *Ego network* is defined as a network consisting of a central author *(ego),* together with the coauthors they are connected to *(alters)* and all the links among those coauthors (Wasserman and Faust 1994). Consequently, ego network analysis was performed locally by individual nodes without complete knowledge of the entire network. This helped us differentiate between two types of ego networks—*dense ego networks* and *star-like* or *sparse ego networks* (Goyal, van der Leij, and Moraga-González 2006; Oh, Choi, and Kim 2005; Ustuner and Godes 2006). Finally, the subnetworks of *JPSSM* in three time periods were studied separately (1980s, 1990s, and 2000s). Examining coauthor networks from a temporal development perspective allowed us to see the evolution of coauthor networks in *JPSSM,* a leading journal of sales research.

Table 6. Two Sources of Social Capital Predicting Individual Researcher's Productivity

	Unstandardized Coefficients (β)	**Standard Error**	***t*-Value**
Constant	0.79	0.18	4.30 ($p < 0.001$)
Network Closure[a]	3.33	0.71	4.71 ($p < 0.001$)
Structural Holes[b]	4.97	0.65	23.46 ($p < 0.001$)
F-value	312.7 ($p < 0.001$)		
Adjusted R^2	0.467		

Notes: [a] Network closure = the proportion of the actual number of ties over all possible ties that could be present: (actual ties present in the network)/(potential ties that could be linked in the network). [b] Structural hole = 1 minus the degree of network constraints. This index is computed based on the three inputs (size, density, and hierarchy). Formula: $1 - C_{ij} = 1 - (P_{ij} + \Sigma_q P_{iq} P_{qj})^2$, for $q \neq i, j$, where P_{ij} is the proportion of i 's relation invested in contact j. The total in parentheses indicates the proportion of i 's relations that are directly or indirectly invested in connection with contact j (Burt 1992).

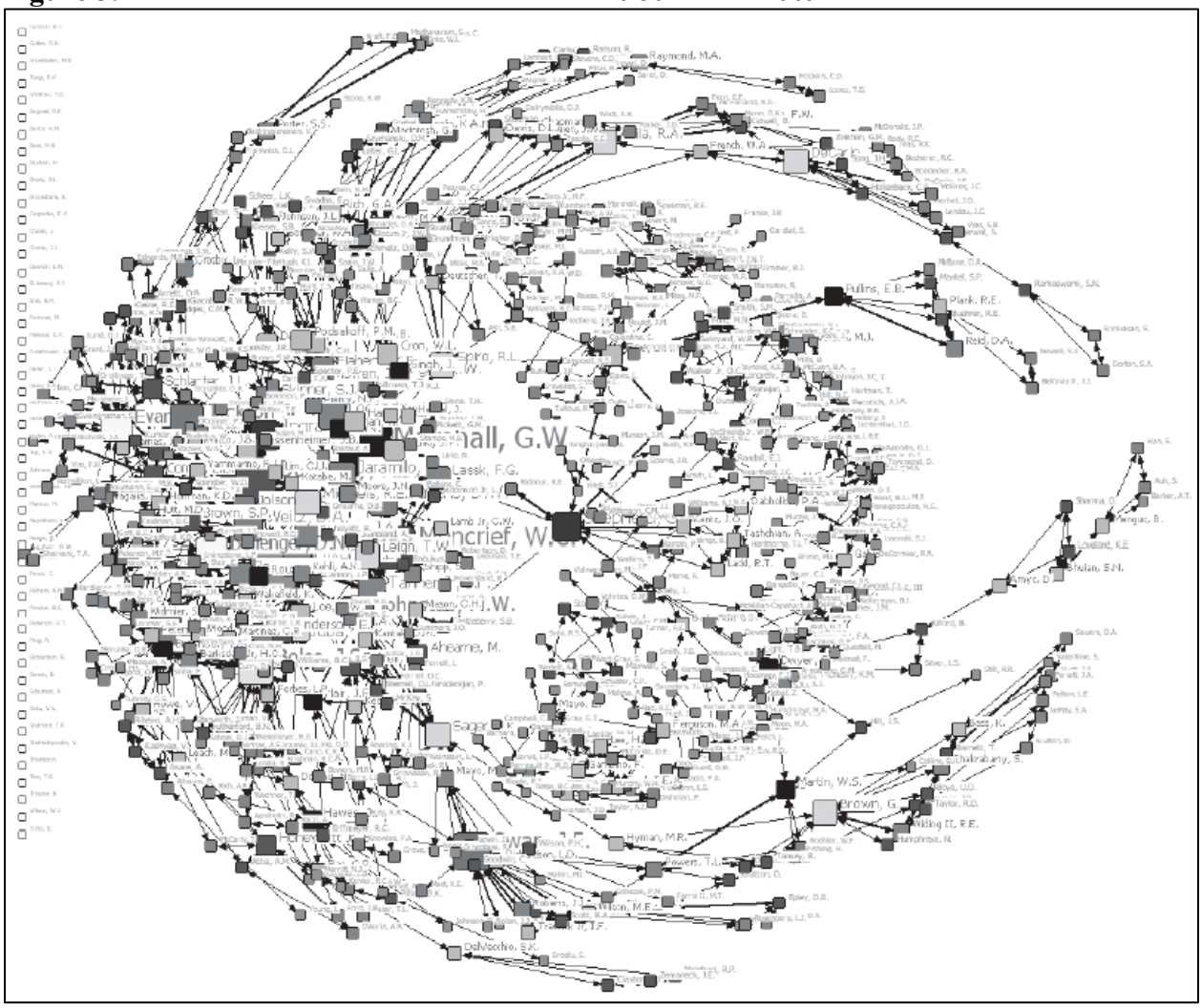
JPSSM Networks: From Fall/Winter 1980 to Fall 2009

Network Closure, Structural Holes, and Research Quantity

As discussed before, Oh, Choi, and Kim (2005) demonstrated that a researcher's citation record can be accrued by his or her research network, in terms of structural holes but not network closure. However, we know little about how social capital may affect researchers' academic performance in terms of number of articles published. To investigate this issue, we conducted a regression analysis that tested the effect of the two types of knowledge capital on a researcher's academic performance based on number of publications in *JPSSM.* As shown in Table 6, the

adjusted *R*2 was 46.7 percent, indicating that 46.7 percent of the variance in the researcher's productivity could be explained by the two characteristics of social network. Both network closure ($\beta = 3.33$, $t = 4.71$, $p < 0.001$) and structural holes ($\beta = 4.97$, $t = 23.46$, $p < 0.001$) were significant predictors of productivity.[3] Overall, the *JPSSM* data support network closure and structural holes as two bases of knowledge capital accumulation among researchers.

Figure 3. Coauthor Networks: From Fall/Winter 1980 to Fall 2009



Note: The size of the box represents the degree centrality of the focal author in the network, and the strength of the line represents the degree of collaboration between two authors.

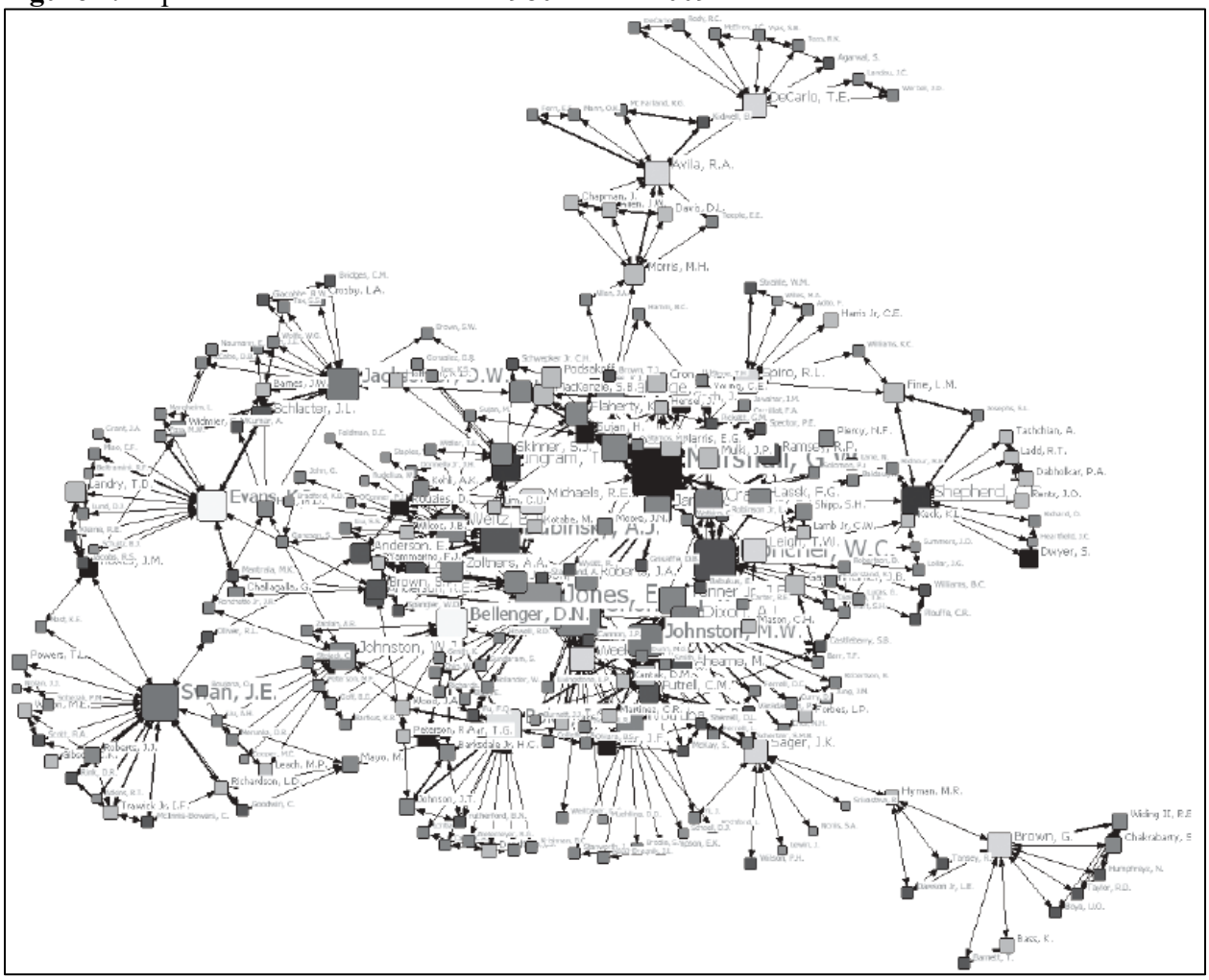
Network Centrality and Research Quality

A coauthor network includes a set of authors and the ties or linkages among them. The ties represent the degree of collaborations and are measured as the number of coauthored papers. Network centrality is an important structural characteristic capturing patterns of collaboration among these authors. These patterns can be evaluated with degree centrality—an indicator of the

[3] We also assessed potential threats from multicollinearity. The variance inflation factor was lower than 10 (variance inflation factor = 1.16), which suggests that multicollinearity is not a threat to the validity of the study's findings.

role that coauthor networks play in an author's research productivity (Wasserman and Faust 1994). Degree centrality is estimated by the number of ties held by each author (Wasserman and Faust 1994). Because ties in a coauthor network represent the degree of collaboration an author has with others, one expects a positive correlation between degree centrality and research productivity.

Figure 4. Top Networkers: Fall/Winter 1980 to Fall 2009

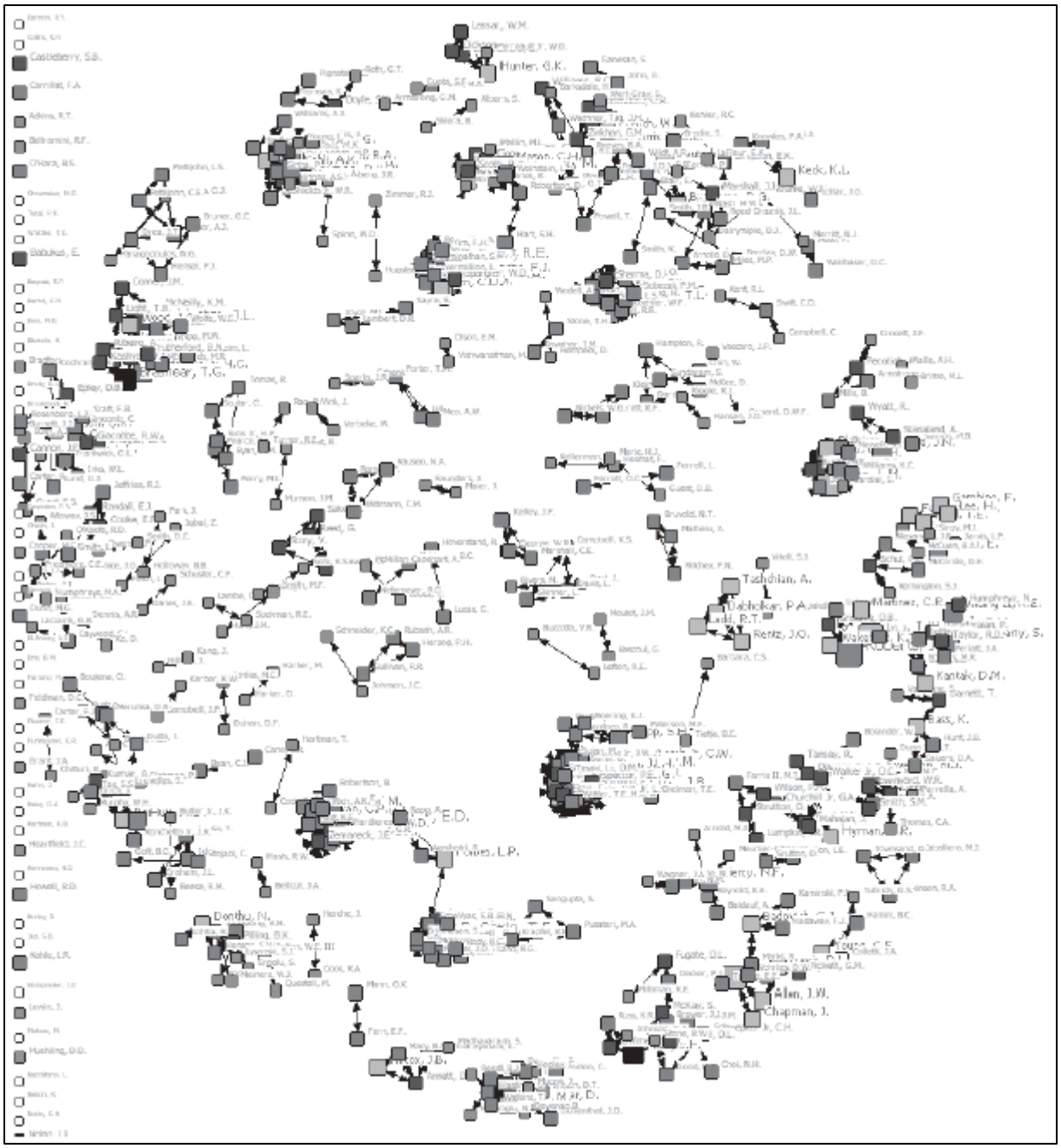


Note: The figure includes all authors with degree centrality indices of 10 or higher (top networkers) and their coauthors.

The full coauthor network for the *JPSSM* authors in the past 30 years is shown in Figure 3. The average degree centrality is 2.74 (standard deviation [SD] = 2.86), ranging from 0 to 25. As shown in Table 7, the authors with the larger degree of centrality were Greg W. Marshall (25), Lawrence B. Chonko (22), John F. Tanner (21), and William C. Moncrief (20). Figure 4 shows the coauthor networks of 30 authors with degree centrality of 10 or above. Figure 4 shows that the networks formed by these authors contain few structural holes. This indicates that there is a high degree of collaboration among the networks centered on authors with a high degree of centrality. However, once these top networkers are removed from the overall *JPSSM* network,

several structural holes appear (see Figure 5). This indicates that collaboration among networks of authors with lower degree centrality is sparse.

Figure 5. Coauthor Networks with Top Networkers Removed: From Fall/Winter 1980 to Fall 2009



Notes: The figure includes all authors with degree centrality indices below 10 and their coauthors. Top networkers were removed.

Table 7. Degree Centrality (DC) and Article Citations

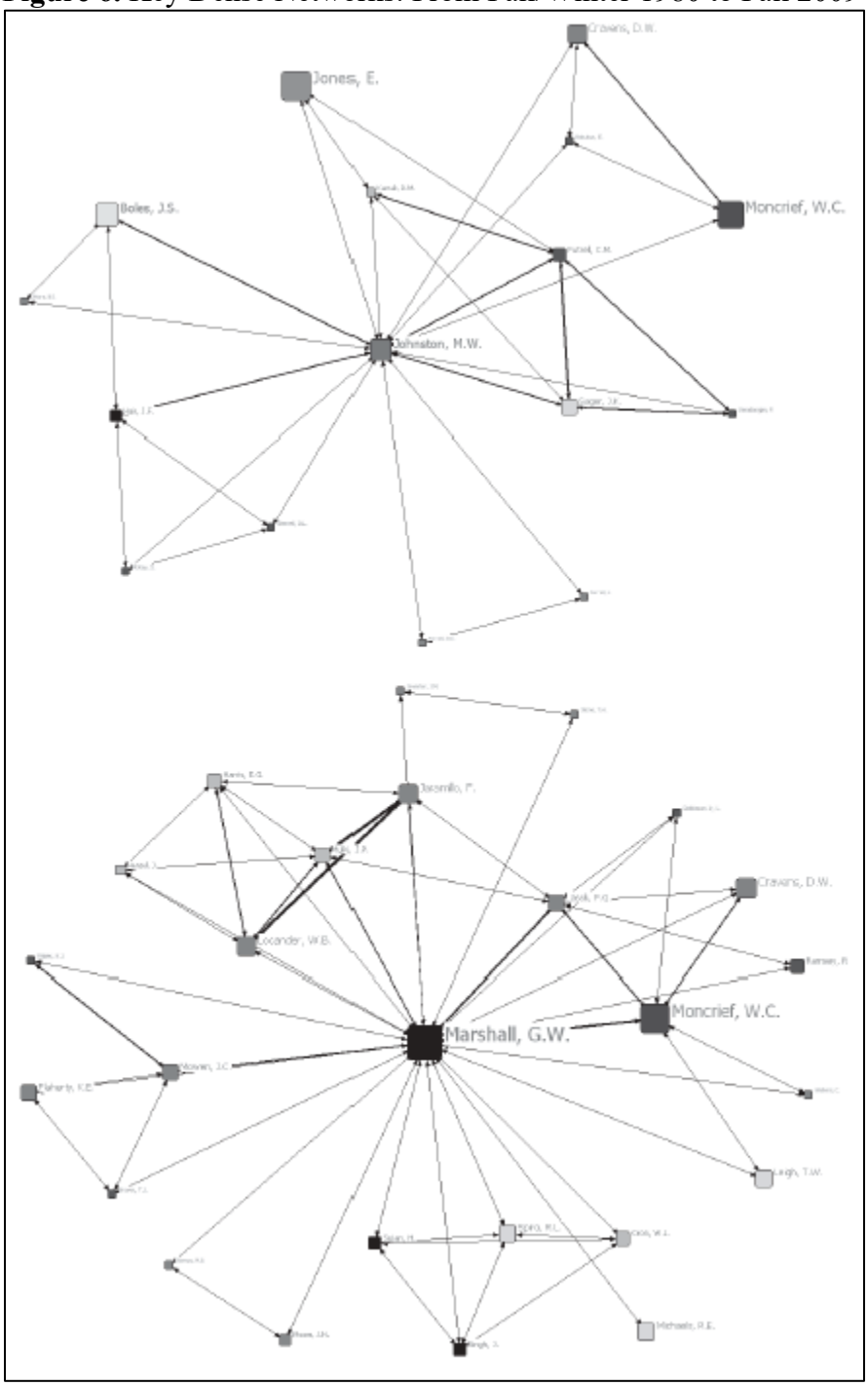
DC Ranking (Top)	DC	Author	Author and Strongest Collaborator	Volume	Issue	Period[a]	Citations[b]	Weighted Citations[c]
1	25	G.W. Marshall	G.W. Marshall and F.G. Lassk	26	1	3.75	4	1.07
			G.W. Marshall and F.G. Lassk	22	2	7.5	27	3.60
			G.W. Marshall and F.G. Lassk	21	4	8	12	1.50
			G.W. Marshall and F.G. Lassk	15	3	14.25	15	1.05
2	22	L.B. Chonko	L.B. Chonko and E. Jones	25	4	4	3	0.75
			L.B. Chonko and E. Jones	25	2	4.5	12	2.67
			L.B. Chonko and E. Jones	24	1	5.75	11	1.91
			L.B. Chonko and E. Jones	22	4	7	19	2.71
3	21	J.F. Tanner	J.F. Tanner and L.B. Chonko	20	1	9.75	15	1.54
			J.F. Tanner and L.B. Chonko	16	1	13.75	23	1.67
			J.F. Tanner and L.B. Chonko	13	4	16	21	1.31
			J.F. Tanner and L.B. Chonko	13	2	16.5	6	0.36
			J.F. Tanner and L.B. Chonko	12	3	17.25	15	0.87
			J.F. Tanner and L.B. Chonko	11	1	18.75	20	1.07
4	20	W.C. Moncrief	W.C. Moncrief and G.W. Marshall	26	1	3.75	4	1.07
			W.C. Moncrief and G.W. Marshall	21	4	8	12	1.50
			W.C. Moncrief and G.W. Marshall	20	2	9.5	6	0.63
5	19	A.J. Dubinsky	A.J. Dubinsky and M.A. Jolson	15	4	14	27	1.93
			A.J. Dubinsky and M.A. Jolson	15	2	14.5	73	5.03
			A.J. Dubinsky and M.A. Jolson	13	4	16	10	0.63
			A.J. Dubinsky and M.A. Jolson	12	4	17	32	1.88
			A.J. Dubinsky and M.A. Jolson	7	3	22.25	13	0.58
6	17	J.E. Swan	J.E. Swan and J.A. Roberts	8	1	21.75	86	3.95
			J.E. Swan and J.A. Roberts	6	2	23.5	2	0.09
			J.E. Swan and J.A. Roberts	14	4	15	9	0.60
7	16	J.S. Boles	J.S. Boles and W.J. Johnston	28	3	1.25	1	0.80
			J.S. Boles and W.J. Johnston	17	1	12.75	82	6.43
			J.S. Boles and W.J. Johnston	11	1	18.75	58	3.09
			J.S. Boles and W.J. Johnston	9	3	20.25	10	0.49
8	15	D.W. Jackson	D.W. Jackson and J.W. Barnes	26	3	3.25	2	0.62
			D.W. Jackson and J.W. Barnes	14	4	15	13	0.87
9	15	M.W. Johnston	M.W. Johnston and J.F. Hair	17	1	12.75	82	6.43
			M.W. Johnston and J.F. Hair	11	2	18.5	10	0.54
			M.W. Johnston and J.F. Hair	9	3	20.25	10	0.49

DC Ranking (Top)	DC	Author	Author and Strongest Collaborator	Volume	Issue	Period[a]	Citations[b]	Weighted Citations[c]
10	14	K.R. Evans	K.R. Evans and J.L. Schlacter	24	3	5.25	8	1.52
			K.R. Evans and J.L. Schlacter	5	2	24.5	16	0.65
			K.R. Evans and J.L. Schlacter	2	2	27.5	5	0.18
10	14	D.N. Bellenger	D.N. Bellenger and J.S. Boles	28	3	1.25	1	0.80
			D.N. Bellenger and J.S. Boles	26	1	3.75	6	1.60
			D.N. Bellenger and J.S. Boles	23	2	6.5	9	1.36
Mean							19.75	1.65
Standard Deviation							23.32	1.56
Weighted Citations, 95% Confidence Interval 1.15 to 2.14								

DC Ranking (Bottom)[d]	DC	Single Author Articles	Volume	Issue	Period[a]	Citations[b]	Weighted Citations[c]
1	0	R.Y. Darmon	28	3	1.25	0	0.00
		R.Y. Darmon	18	3	11.25	10	0.89
		R.Y. Darmon	18	1	11.75	15	1.28
		R.Y. Darmon	17	1	12.75	7	0.55
		R.Y. Darmon	13	3	16.25	11	0.68
		R.Y. Darmon	7	1	22.75	2	0.09
		R.Y. Darmon	2	2	27.5	4	0.15
2	0	T.E. Whittler	16	2	13.5	1	0.07
		T.E. Whittler	14	4	15	15	1.00
3	0	H. Blustain	12	2	17.5	3	0.17
4	0	D.L. Brady	7	2	22.5	0	0.00
5	0	F.N. Cespedes	12	3	17.25	3	0.17
6	0	R.G. Funkhouser	4	2	25.5	4	0.16
7	0	J.C. Hafer	6	3	23.25	14	0.60
8	0	C.H. Noble	28	3	1.25	0	0.00
9	0	V. Stathakopoulos	16	2	13.5	14	1.04
10	0	J. Klompmaker	1	1	28.75	8	0.28
10	0	R. Peterson	14	2	15.5	0	0.00
Mean						6.17	0.40
Standard Deviation						5.62	0.42
Weighted Citations, 95% Confidence Interval 0.19 to 0.61							

Notes: [a] Number of years since publication date. [b] Number of Google Scholar citations by August 5, 2009. [c] Citations weighted by year (period). [d] Eleven authors were randomly selected from 48 authors with the lowest degree centrality (DC = 0).

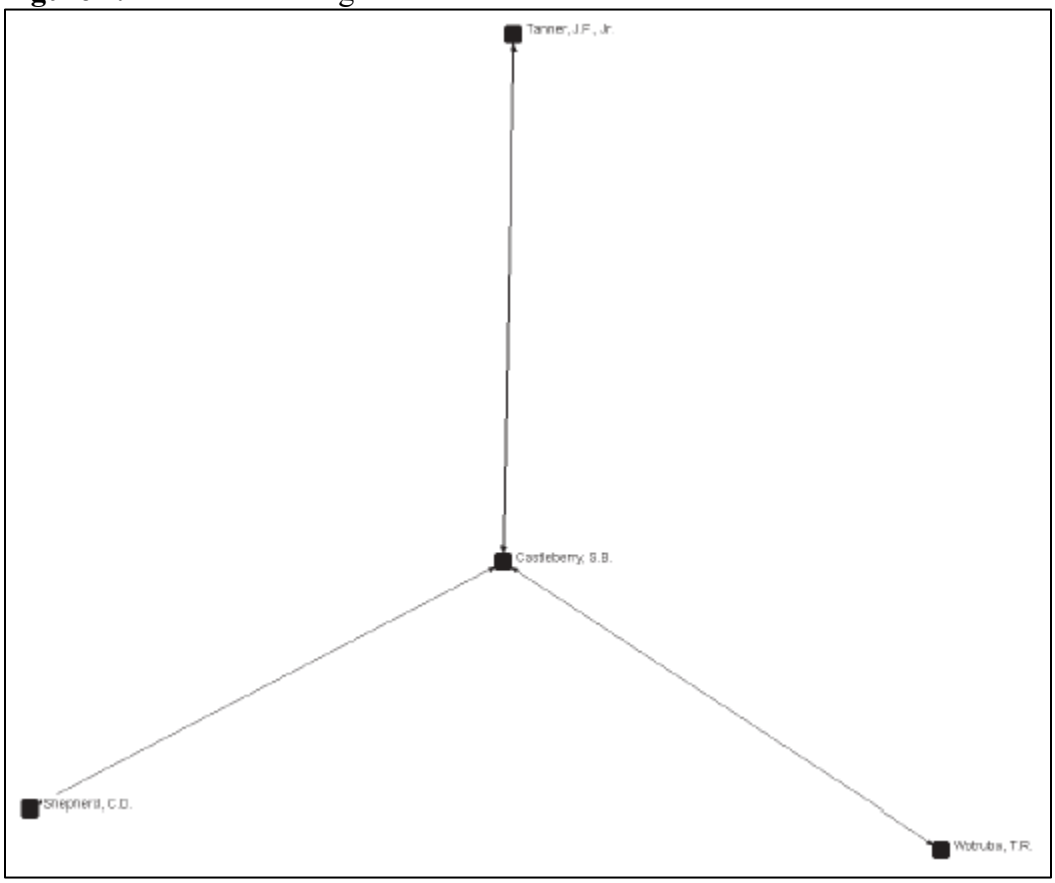
Figure 6. Key Dense Networks: From Fall/Winter 1980 to Fall 2009



As expected, degree centrality and research productivity were found to be highly correlated (r = 0.87, $p < 0.001$). This finding shows that authors who collaborated with more people in the network were more productive. Earlier we also posited that coauthorship not only affects "quantity" but could also affect research "quality." Impact factor scores (article citations) are perhaps the most widely used tool to assess the "quality" of journals and articles. They are used by university administrators for hiring, tenure, and grant decisions (Monastersky 2005). In a

recent article, Woodside (2009) posits that 100 citations are a reasonable minimum for promotion to associate professors at research universities. The degree centrality index was used to assess the impact of networking on article citations. This evaluation was performed by comparing weighted citations of articles from 11 authors with the highest degree centrality scores with those written by 11 authors with the lowest degree centrality scores. Google Scholar was used to obtain article citations (e.g., Woodside 2009). For the first group, we used all papers written by the author with the top degree centrality ranking and his or her stronger collaborator. For the second group, we randomly selected papers written by 11 authors with a degree centrality score of zero. Table 7 shows that the average number of citations of articles coauthored by individuals with the highest degree centrality scores was 19.75 (SD = 19.75). Citations weighted by the number of years since publication was 1.65, with a 95 percent confidence interval ranging from 1.15 to 2.14. Average citation for the second group was only 6.17 (SD = 5.62) and the mean citations weighted by number of years was 0.40, with a 95 percent confidence interval ranging from 0.19 to 0.61. Because there is no overlap on the 95 percent confidence intervals, results support the notion that networking is positively related with article impact factors.

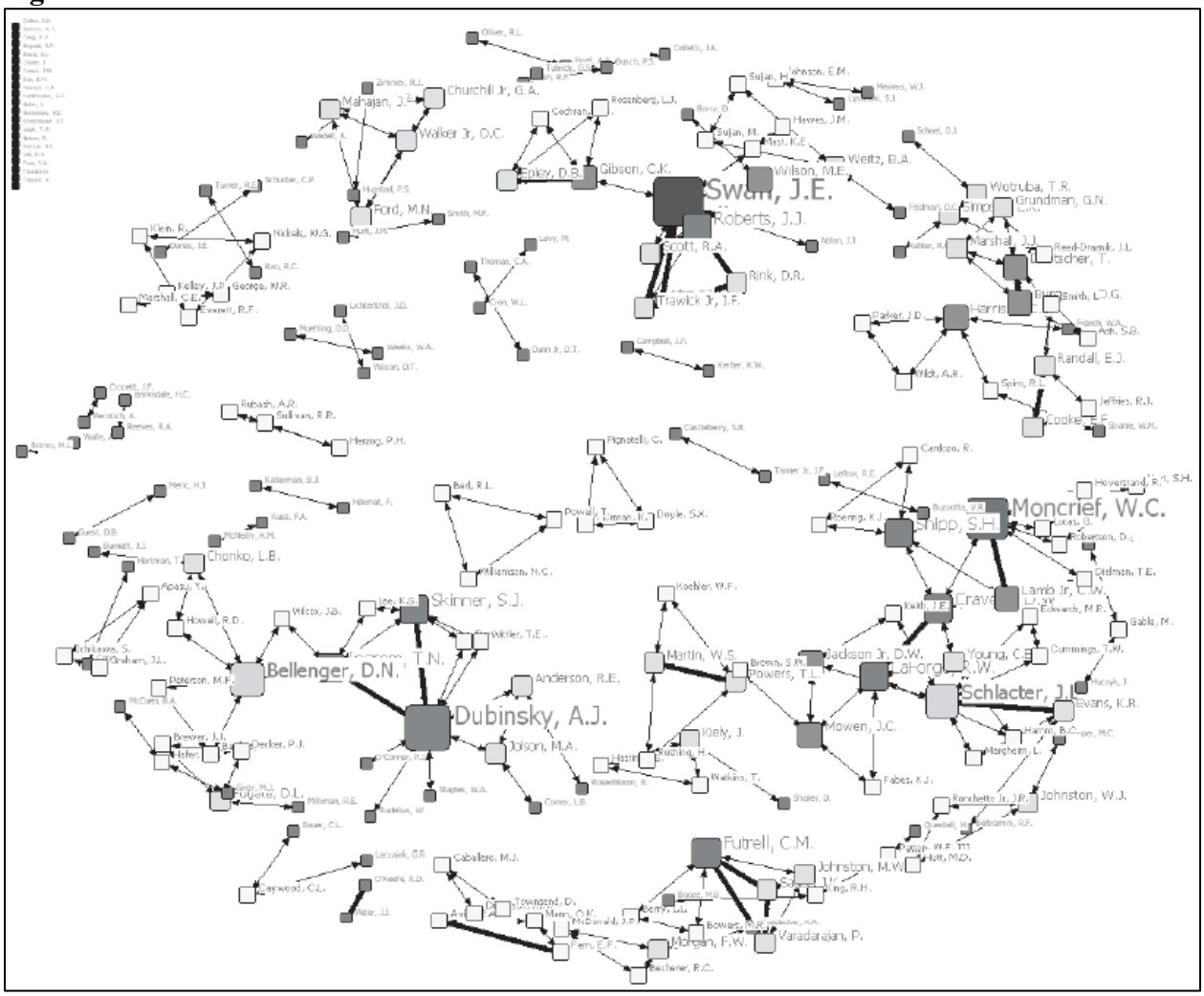
Figure 7. Star-Like or Fragmented Networks



A further examination of the authors who had a greater degree centrality showed that they all belonged to several ego networks. To illustrate, Greg W. Marshall's and Mark W. Johnston's ego networks are depicted in Figure 6, in which the members not just collaborate with the central author (e.g., Greg W. Marshall), but also collaborate with each other. Only a few high-performing authors belonged to star-like or fragmented ego networks, in which the central author

collaborates with others but the coauthors do not collaborate with each other. As shown in Figure 7, Stephen B. Castleberry (four papers published in *JPSSM*) has this type of ego network. As discussed earlier, there is a debate in the social networking literature about whether a dense or fragmented ego network is more effective (Goyal, van der Leij, and Moraga-González 2006; Oh, Choi, and Kim 2005). Apparently, our results suggest that at least from the perspective of research productivity, network closure and structural holes both contribute to academic performance.

Figure 8. Coauthor Networks: 1980s

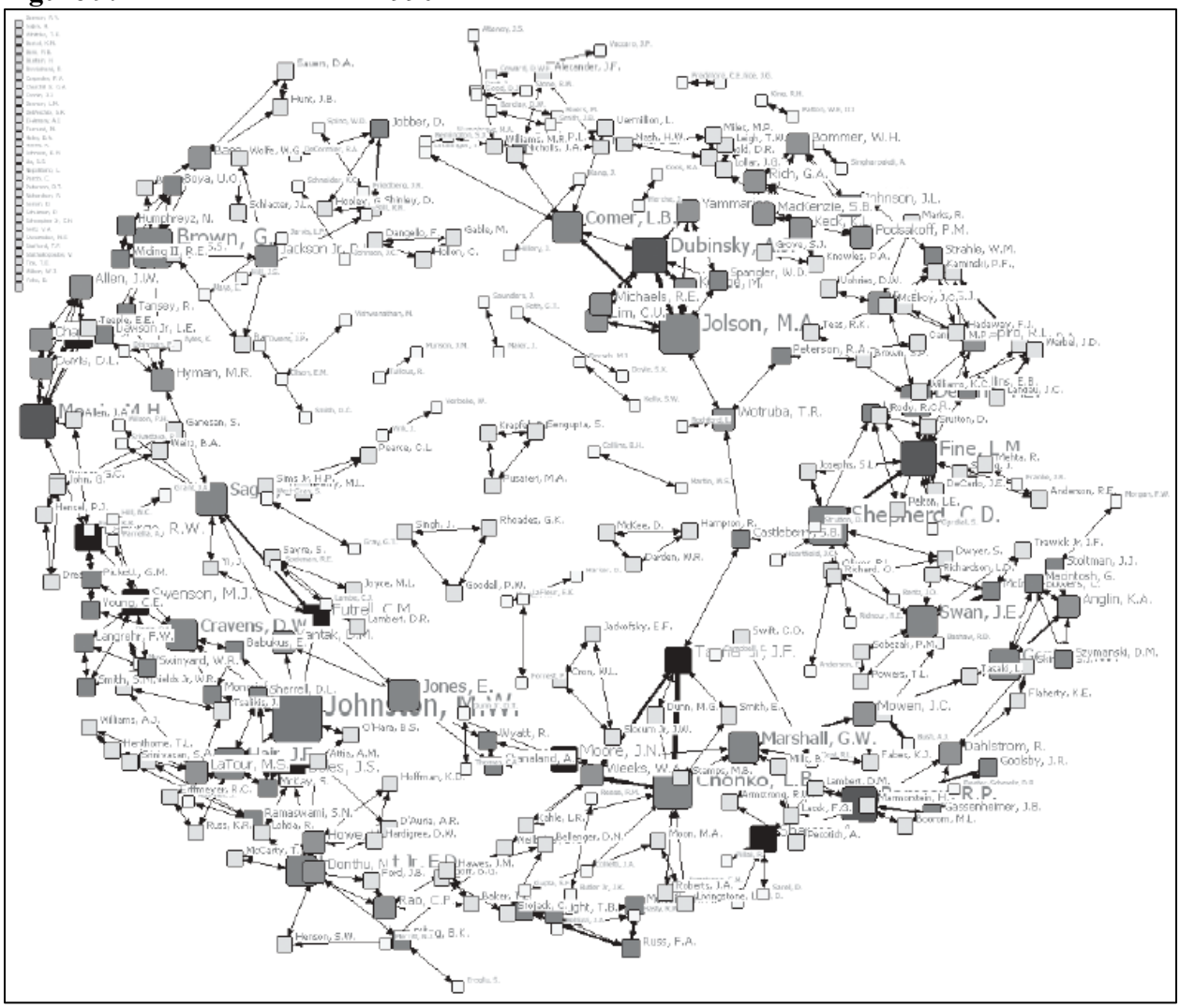


Evolution of Coauthor Networks Over Time

The subnetworks in the 1980s, 1990s, and 2000s were further studied separately to understand how the *JPSSM* coauthor network has evolved over time. Figure 8 shows the full coauthor network that appeared in the 1980s, in which an author's degree centrality is represented by the size of the area of the corresponding node, and the strength of a line linking two nodes (authors) represents the degree of collaboration (number of coauthored papers) between them. The densest network in this period was formed by Dubinsky-Ingram-Skinner-Donnelly-Wittler, Moncrief-

Lamb-Cravens-Shipp-Dielman, Swan-Wilson-Scott-Roberts-Rink-Trawick, and Futrell-Varadarajan-Johnston-Sager. There were also a few ego networks with structural holes in the 1980s network. For example, Figure 8 shows that Donald W. Jackson did not coauthor with Loren Margheim or Mark R. Edwards. Structural holes are extremely important at the stage of idea generation or new streams of research development, because loosely connected networks with a great degree of structural holes allow authors to access fresh insights provided by external researchers and obtain innovative ideas (Oh, Choi, and Kim 2005). This may explain why many names that appear on Figure 8 are now regarded as important contributors to sales research.

Figure 9. Coauthor Networks: 1990s

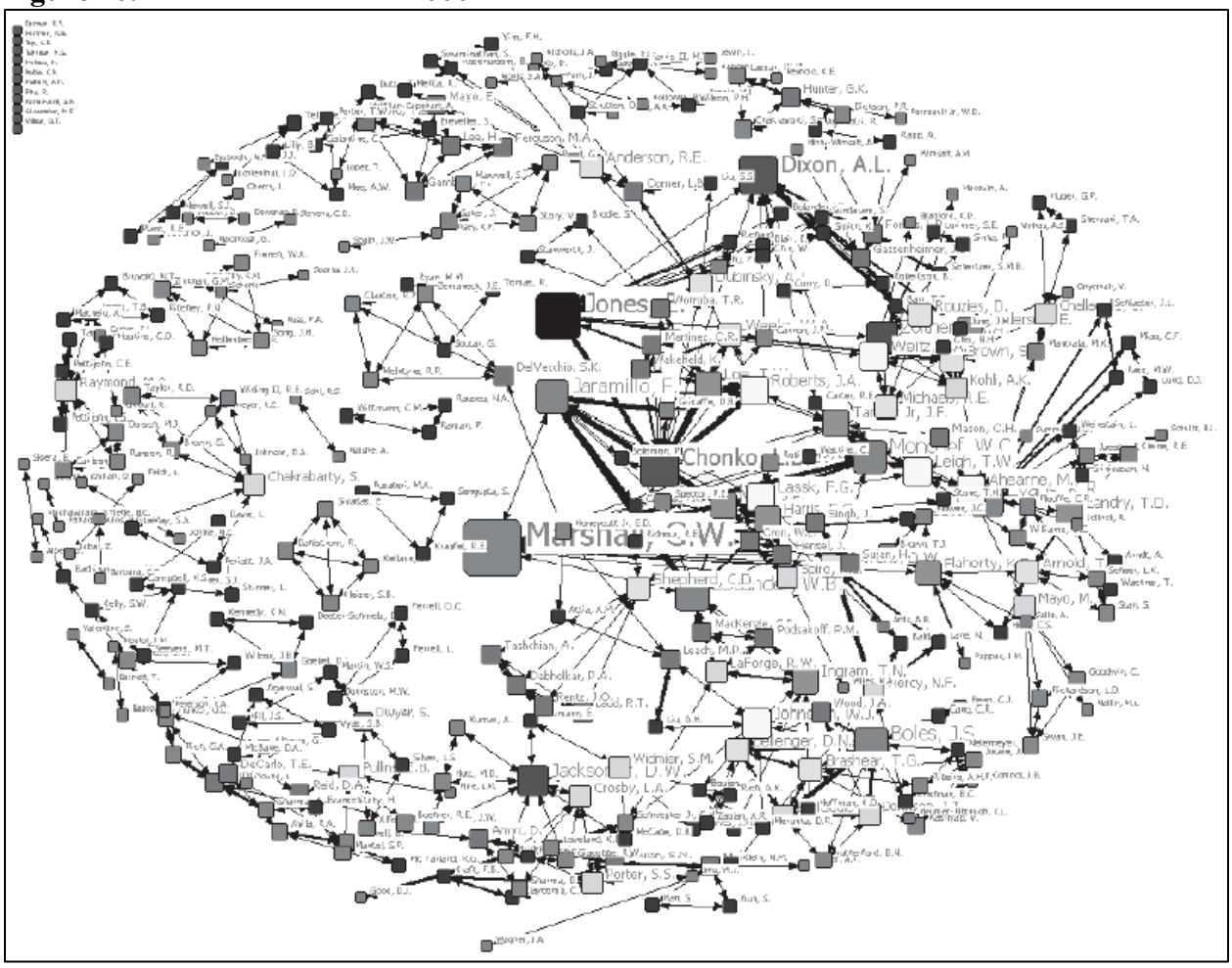


Note: The size of the box represents the degree centrality of the focal author in the network, and the strength of the line represents the degree of collaboration between two authors.

Figure 9 presents the full coauthor network of authors who published at least one paper in the 1990s, which revealed that new centers of information and new coauthor networks appeared in this period. Compared with the 1980s network, the network of the 1990s was larger and denser. Alan J. Dubinsky continued to have a great level of centrality although his network "members" changed and the structure of his ego network became denser relative to that in the 1980s. His

collaboration with Marvin A. Jolson increased significantly and a new dense network composed by Johnston, Boles, O'Hara, Hair, Sherrell, and McKay was formed. Another important dense network was made up of Chonko, Tanner, Weeks, Smith, and Dunn. Stephen B. Castleberry also had a high level of centrality in this decade. As shown in Figure 9, Castleberry collaborated with C. David Shepherd, John F. Tanner, and Thomas R. Wotruba. This network was star-like or sparse because Tanner, Shepherd, and Wotruba did not coauthor any *JPSSM* paper in this period. Several new ego networks also emerged during this period, including Fine-Shepherd-Josephs, Brown-Tansey-Dawson-Hyman, and Gentry-Szymanski-Macintosh-Anglin.

Figure 10. Coauthor Networks: 2000s



Note: The size of the box represents the degree centrality of the focal author in the network, and the strength of the line represents the degree of collaboration between two authors.

Figure 10 depicts the full coauthor network of the contributors to *JPSSM* in the twenty-first century. The authors with the highest degree centrality in the network during this period were Greg W. Marshall and Eli Jones. They not only formed their own dense ego networks, but they belonged to several other dense ego networks as well. For example, Greg W. Marshall formed a dense ego network with Moncrief, Lassk, and Cravens, another dense ego network with Mulki, Jaramillo, Locander, and Harris, a third dense ego network with Moven, Brown, and Flaherty, and a fourth group with Spiro, Cron, Sujan, and Singh. Similarly, Eli Jones had five dense ego

networks: (1) Jones-Dixon-Cannon-Chonko, (2) Jones-Chonko-Dubinsky-Roberts-Weeks, (3) Jones-Weitz-Brown-Zoltners, (4) Jones-Chin-Sundaram, and (5) Jones-Smith-Blair. Some additional examples of authors who not only had their own dense ego networks but were also important members of multiple dense ego networks were Lawrence B. Chonko, Andrea L. Dixon, William C. Moncrief, Fernando Jaramillo, James S. Boles, Kenneth R. Evans, and William B. Locander. These ego networks have likely played important roles in the development and growth of sales research.

Figure 10 also shows that the above-mentioned ego networks were "connected" by at least one common coauthor, which made the common author the key "broker." In such a position, the common author would have positional advantages or a higher level of betweenness than other members in the subnetwork. The top five authors with a higher level of brokerage scores than others in this period were Marshall, Jones, Dixon, Moncrief, and Chonko. Other important networks also appeared during this period but were not connected to the central web. Two examples were (1) the networks formed by James S. Boles with Thomas G. Brashear, Hiram C. Barksdale, and John Andy Wood, and (2) the network formed by Wesley J. Johnston with Mark P. Leach and Annie H. Liu.

DISCUSSION

This paper examines individual and institutional contributions to *JPSSM* from the journal's first appearance in fall/winter 1980 to its fall 2009 issue. The nature and the dynamics of the journal's coauthor network are identified and studied. Results indicate that most high-performing sales scholars possess one common trait: they effectively network and collaborate with other sales scholars. This brings further support to the long-held notion that a significant portion of individual performance is explained by a person's capacity to work well with others (Hogan and Holland 2003). Our study shows that network ability, measured in terms of the centrality indices, is significantly related to research productivity and article impact factor. As shown in Table 1, only two scholars were able to publish three or more *JPSSM* papers in a single decade as a solo author, Robert H. Collins in the 1980s and René Y. Darmon in the 1990s.

Our findings also indicate that there are significant changes in performance rankings of individual authors and institutions over time. Only few authors and institutions have remained as substantial contributors of *JPSSM* over time. Perhaps these changes are driven by the fact that *JPSSM* is a relatively young journal. Changes in institutional rankings can also be explained by sales scholars moving from one institution to another. A significant drop in a school ranking occurs when a "star" leaves.

Our finding of the productivity of top-performing contributors to *JPSSM* over time has important implications for sales researchers and their institutions. Publications in top-tier specialty journals are used by many universities to make promotion and tenure decisions. Findings of this paper can help administrators define realistic publication expectations for faculty with an interest in sales management research. Researchers can also use these findings as a benchmark of their own performance.

This study also identified the overall coauthor network in each decade from the 1980s to the 2000s, which allowed us to examine the evolution of *JPSSM* 's coauthor network over time. A component analysis was further conducted to identify subgroups of connected actors (components). The results showed that the 1980s subnetwork is the most fragmented (fragmentation index = 0.97), followed by the 1990s subnetwork (0.94), and the 2000s subnetwork (0.84). This finding suggests that with time going, the *JPSSM* coauthor network becomes larger and denser, but at the same time contains a greater level of structural holes. We believe that this process revitalizes sales research and enhances new knowledge creation.

A closer examination of the coauthor networks at the individual level indicates that most ego networks have experienced dramatic changes. Only a few ego networks of *JPSSM* 's leading contributors remain unaltered. For the most, ego networks evolve by reducing some members and bringing new members. But it was very common that the change in membership was accompanied by structural changes, mainly from a more fragmented structure to a more dense structure. This may be due to the "norms" gradually established among close coauthors in the process of collaboration. According to Oh, Choi, and Kim (2005), shirking or lack of collaboration in a close network may result in being banned from the group. During the process of "getting denser," the direct and indirect ties among members can often stimulate knowledge sharing and trust, all of which are key ingredients of research productivity.

Results of the complete coauthor network indicate that the three authors with the largest degree centrality index are Greg W. Marshall, Eli Jones, and Lawrence B. Chonko. These authors were also ranked as the third, fifth, and number one, respectively, contributor to *JPSSM* over the past 30 years. A closer examination of their ego networks shows that they are not only "centers" of their own dense ego networks, but also important members of several other dense ego networks. The composition of these networks often includes senior researchers (perhaps their mentors), coauthors from their institution, and doctoral or former doctoral students they have coached. In addition, although these ego networks have changed over time, the importance of these key "actors" has never been replaced.

We believe that our research findings have many important practical implications. For instance, academic institutions with limited budgets are likely concerned about the benefits of sending their doctoral students and faculty to specialized sales conferences such as the National Conference in Sales Management (NCSM). Our finding that networking affects both the "quantity" and "quality" of scholarly contributions evidently justifies networking-related investments. Information about past network membership and degree centrality can help individuals who are "new" to the sales field find collaborators and mentors for their research projects. Evidence that only few "solo authors" have become "top" sales scholars may discourage lone-wolf behaviors in newcomers. This is critical given our findings that both network closure and structural holes affect researcher's productivity. Top-performing sales scholars typically belong to several closed networks and networks containing structural holes. The existence of structural holes suggests that they are likely inviting and willing to share their expertise with newcomers.

LIMITATIONS AND DIRECTIONS OF FUTURE RESEARCH

This research performed a comprehensive productivity analysis of *JPSSM* authors and their institutions. We also demonstrate that the more prolific *JPSSM* writers accounted for 20.4 percent of the sales-related articles published in other non-sales-oriented outlets, such as the *Journal of Marketing, Journal of Marketing Research,* and *Journal of Consumer Research.* One issue not examined in the present research is the extent to which sales scholars contribute to nonsales topics. Future research could examine if collaborations "external" to sales enhances or reduces authorship contributions to *JPSSM.* From one perspective, collaboration in nonsales topics could help authors publish in *JPSSM* because this can help them bring innovative ideas, questions, and research methods to their research. However, the time and effort allocated to publish their research in other outlets may reduce an author's capacity of becoming a top *JPSSM* contributor.

In addition, this paper found that the most prolific *JPSSM* contributors belong to several dense networks. Future research is needed to understand how these networks operate. For instance, do members of dense networks have complementary skills? Do members of dense networks "specialize" in distinct elements of the paper such as "modeling," "theory development," "edition," or "data collection"? What is the perceived contribution of each network member? What do authors who operate as network centers bring to the table?

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