

# Who Provides Excellence in Marketing Doctoral Education?

## A citation analysis of Ph.D. graduates

by

Larry M. Robinson, Rice University  
(lrobin@rice.edu)

and

Roy D. Adler, Pepperdine University  
(roy.adler@pepperdine.edu)

### ABSTRACT

*This study recorded 307,040 citations to measure the research productivity of the 3,096 full time marketing faculty with doctoral degrees teaching at the 477 universities listed with the AACSB. This research included lifetime citation counts for each faculty member, and were recorded between March and June 2003.*

*Professors were assigned to the schools from which they received their doctoral degrees. Rankings of the schools graduating the most productive scholars were constructed, based on the number of citations earned by the alumni currently teaching in marketing departments. Rankings were generated based on the total number of graduates, total citations, mean citations per graduate, median citations, and mean citations with the graduate earning the highest number of citations removed from the total.*

*The paper also contains a review of the literature on citation analysis and suggests how citation analysis might be used as an assessment tool by business school administrators, professors, students, and corporate managers.*

### INTRODUCTION

This research focused on the research productivity of the doctoral candidates graduated by various schools. One well-known measure of research productivity is the number of publications. The implicit assumption is that an author with a great number of publications has his or her work read very frequently by others in the field, and that the more often an author is read, the more impact he or she has on the thinking of others.

The difficulty with this line of reasoning is that it is based on *quantity of production*, because only the number of articles is tallied. There is no attempt to measure whether the articles have influence or, in fact, whether they have been read by anyone at all. It could be, for example, that an author might have published dozens of articles, but none of the articles were ever used by anyone else to shape their thinking. In that case, an author rated fairly high in production quantity would be rated very low on measures of impact on others.

Impact measures would be very valuable, but they are elusive. It would not seem to be an easy task to determine the impact of the nearly 3,100 full time marketing faculty members with doctoral degrees at 477

marketing departments. That task was accomplished using citation analysis, however, and the results are presented here as a series of rankings of the research productivity of each school's alumni in the marketing discipline.

## BACKGROUND ON CITATION ANALYSIS

Citation analysis is a process that measures the number of times a published article has been referenced in other articles worthy of publication. The overall concept is to regard an article as having impact if a subsequent author deems it important enough to merit citing it in her own published work. Authors, articles, journals, and institutions with the most citations can logically be considered to have had the most impact. In this paper, it measures the impact of a school's doctoral graduates on the marketing discipline.

Citation analysis became an accepted method for analysis of research quality in the natural sciences in the early 1960s following the introduction of the *Science Citation Index (SCI)*. In 1969, the *Social Science Citation Index (SSCI)* became a new source of information about the citation practices of major journals in the social sciences. Since that time the number of social science journals included in *SSCI* has grown to about 1,700, with many of the journals including all citations dating back to 1975.

A citation is recorded when an article in one of the 1,700 journals indexed by *SSCI* has referenced a previous work, and that previous work is credited with the citation. Citation analysis is an established procedure for the analysis of contributions to knowledge, dissemination of knowledge, and extent of knowledge exchange in a given field (Garfield 1979), and is a way of tracing the development of thought in a discipline.

Citation analysis has several advantages over other methods of evaluating research productivity in that it is objective, quantifiable, and a logical measure of quality. It is evidence that an article has not only been published, but has been *read and referenced* by someone else in an article good enough to be published in a journal included in the *SSCI*. As a quantifiable indication of influence on the work of others, it is an objective measure of research quality. Citation analysis has also been correlated with scientific productivity and peer judgments of performance (Bayer and Folger 1966).

Citation analysis is not without issues, and citation practices vary greatly by author. A critical review of citations analysis by MacRoberts and MacRoberts (1989) examined the issues in use of citation counts, including biased citing, self-citing, and difficulties in treating citations of multiple authors for an article. The article also noted variations in citation rate related to type of publication, nationality, time period, and size of specialty area. Low citation rates for many journal articles suggest much of published work in social science journals is not read by anyone (Mahoney 1987, Hamilton 1991).

The first known use of citations in the business disciplines was the measurement of the impact of marketing scholars and institutions over the four-year period 1972-1975 (Robinson and Adler 1981). A few years later, the accounting discipline began to use citation analysis to assess the impact of journals and articles in accounting research (Brown and Gardner 1985). In 1990, the *Journal of Financial Economics* provided citation index rankings, and Alexander and Mabry (1994) ranked the 50 most-cited authors in finance for the time period 1987-1991. Vincent and Ross (2000) provide perhaps the strongest recent review of the literature on citations analysis, and its uses and potential uses in business research. Both advantages and pitfalls are highlighted in their work.

## METHOD

This study was designed to extend previous work done by authors who identified and ranked business schools based on measures of research productivity. Earlier work in this area was limited in scope, due primarily to a limited ability to access relevant data, but the design of the present study benefits from recent advances in information technology. The researchers were able to gather all data needed for the study by using unobtrusive means. The study was divided into three phases.

**The first phase** began by identifying the members of the marketing faculty to be included in the study, by accessing the websites for each of the 477 schools listed by the AACSB. Full time faculty members with doctorates who were listed on their school's website as marketing faculty were included, and the following data was recorded for each.

- Last Name, First Name, Middle Initial(s)
- Current School
- Current academic rank (Assistant, Associate, Full, Endowed Chair, Other)
- Current academic title (full title as listed on the school's website)
- Ph.D. School, year, and discipline(s)
- Primary teaching/research discipline
- Secondary teaching/research discipline;

School websites varied greatly in the amount of information available. For those instances when supplemental information was needed, the researchers used Digital Dissertations, internet search engines, and directories for faculty (Hasselback, 2002).

**The second phase** of the study gathered citations data for each of the 3,096 faculty members identified in the first phase. The researchers used the Web of Knowledge to gather lifetime citations data from online data compiled and updated weekly by the Institute for Scientific Knowledge (ISI) from the *SSCI*. The endnote provides details about the process used to develop lifetime citation counts. All citation counts were captured between March 1 and June 30, 2003.

**The third phase** grouped individuals into alumni groups for universities granting the doctorate. Doctoral programs were then ranked based on total size, total citations, mean citations, median citations, and total citations minus those earned by the professor with the highest total for that school. That individual was identified by name and number of citations.

A more extensive explanation of how the data issues were handled can be accessed on the website [academicassessments.com](http://academicassessments.com).

## RESULTS

The results were based on 307,040 citations, which was a snapshot of the lifetime citation counts for the 3,096 full time faculty members at the 477 business schools included in the study, grouped by the university granting the doctorate. In order to meet the eligibility requirement as a doctoral-granting program, the decision rule was that there must have been at least five graduates currently on marketing faculties, and they must have a total of at least 100 citations. A total of 84 schools met this requirement.

The following table shows all 84 schools in alphabetical order. Columns 1 through 5 show five ways that the schools could logically be ranked, and additional columns show the raw numbers.

**Column 1** ranks schools in order of the number of doctoral graduates who are listed by their current universities as marketing professors. While this is a measure of size of the program, it is also a measure of the impact that a large number of graduates have in influencing marketing thought through the education of marketing students in the classroom.

**Column 2** ranks schools in order of the alumni have the largest number of total citations. While this total is clearly influenced by the number of graduates, it is also a measure of the total influence of a university on thought in a particular discipline.

**Column 3** ranks schools whose alumni have the highest *mean* citations. The mean number was chosen in order to more accurately reflect the research productivity of the "typical" doctoral graduate of a given program.

**PhD Programs Graduating Marketing Professors**  
**RANKS BASED ON ....**

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GRADS	CITATIONS	MEAN	MEDIAN	ADJ M	Ph.D. School
17	35	48	50	40	Alabama
60	45	41	53	37	Arizona
7	18	30	32	33	Arizona State
8	36	59	43	49	Arkansas
80	68	40	14	66	Bradford
43	29	28	16	22	California
46	6	3	1	2	Carnegie Mellon
80	80	70	44	70	Case Western Reserve
48	22	9	11	12	Chicago
26	38	46	34	39	Cincinnati
43	53	57	41	47	Colorado
15	8	5	4	6	Columbia
62	61	60	76	71	Connecticut
65	58	49	57	45	Cornell
48	30	27	50	30	CUNY
42	32	33	47	32	Duke
28	21	21	35	26	Florida
34	46	52	48	54	Florida State
26	55	71	60	60	Georgia
30	31	36	65	51	Georgia State
75	75	72	77	84	Georgia Tech
57	26	14	15	19	Harvard
53	39	38	54	36	Houston
6	4	6	7	5	Illinois
4	7	18	17	14	Indiana
48	42	42	36	34	Iowa
80	73	58	13	62	Kansas
77	62	34	20	43	Kansas State
34	70	81	58	75	Kent State
22	33	45	49	44	Kentucky
53	74	82	78	81	Louisiana Tech
34	34	39	55	38	LSU
32	20	15	51	29	Maryland
48	27	16	28	13	Massachusetts
19	65	79	66	76	Memphis
15	11	11	29	8	Michigan
1	5	22	33	17	Michigan State
17	15	17	26	21	Minnesota
64	57	51	63	46	Mississippi
38	78	83	79	82	Mississippi State
48	50	53	67	59	Missouri
43	3	2	3	1	MIT

## PhD Programs Graduating Marketing Professors

### RANKS BASED ON ....

GRADS	CITATIONS	MEAN	MEDIAN	ADJ M	Ph.D. School
38	52	61	68	58	Nebraska
19	19	20	45	15	North Carolina
26	63	76	69	69	North Texas
3	2	7	5	7	Northwestern
29	48	62	30	53	NYU
2	14	35	18	28	Ohio State
63	64	65	70	72	Oklahoma
30	67	77	71	74	Oklahoma State
34	47	54	46	52	Oregon
9	16	25	19	20	Penn
15	25	31	24	27	Penn State
24	13	13	25	10	Pittsburgh
87	69	37	27	68	Princeton
13	10	12	12	9	Purdue
70	49	24	9	23	Rochester
19	23	29	21	25	South Carolina
61	84	84	80	80	Southern Illinois
11	1	4	2	3	Stanford
53	43	44	61	42	SUNY-Buffalo
46	40	43	38	35	Syracuse
59	37	32	64	61	Temple
22	56	74	56	67	Tennessee
5	12	23	10	18	Texas
33	51	64	42	57	Texas A&M
38	44	50	62	48	Texas Tech
80	77	68	31	65	Toronto
77	81	75	72	79	UC-Irvine
38	17	8	6	4	UCLA
80	76	66	81	73	US International
57	54	55	82	56	USC
66	59	47	22	41	Utah
68	79	78	73	77	UT-Arlington
68	66	56	83	64	UT-Dallas
80	82	73	84	83	UW-Milwaukee
80	60	26	37	31	Vanderbilt
70	71	69	23	63	Virginia
12	41	63	39	50	Virginia Tech
53	28	19	74	16	Washington
70	83	80	59	78	Washington State
75	72	67	40	55	Washington U
10	9	10	8	11	Wisconsin
77	24	1	75	24	Yale

**Column 4** ranks schools whose alumni have the highest *median* citations. The median number merited inclusion because the mean number tended to be greatly influenced by a very few frequently-cited alumni at the top of the list for each school, and the median minimized that effect.

**Column 5** ranks schools whose alumni have the highest mean citations, after the most frequently-cited alumnus was excluded from the analysis. This ranking tended to adjust for the so-called "superstar" effect evidenced by some programs.

## DISCUSSION

At first glance, the overall results of this study are what would have been expected. Six schools were ranked in the single digits for at least four out of five of the measures. Those schools were Stanford, Northwestern, Illinois, Columbia, MIT, and Carnegie Mellon. There are, of course, a number of ways that readers could create a combined score for the five measures to rank any set of schools of interest, and the authors invite the readers to exercise their creativity to create their own master list.

What was unexpected was that 33 schools were ranked in the top 50 on *all five* measures. This seems to indicate that the strength of Ph.D. programs in marketing is not limited to a few schools, but instead that there are probably close to three dozen programs whose graduates evidence very solid performance in the marketing discipline.

## IMPLICATIONS

Citation analysis can be used as a scoring system by business school faculty, administrators, students, prospective students, alumni, donors, legislators, and others searching for evidence of excellence in research productivity for various business schools. The technique has the advantages of being empirical, unobtrusive, logical, simple, robust, and relatively unbiased. The major drawback to use of citation analysis has been the difficulty in creating the data that could be applied to large samples of schools and specialties. The present study shows that such a database can be constructed, given current information systems technology.

The authors have moved beyond this study to create a database of nearly 1.5 million citations for professors in a variety of business disciplines. This can be used as a scoring system to rank research productivity in business schools, but can also be used to trace the origin of a stream of research, almost as if one were tracing back ancestry on a genealogical chart. Along the way, citation analysis is an efficient way to answer simple and not so simple questions regarding the impact of journals, articles, and streams of research. Citation analysis can address these issues in an extraordinarily efficient way.

Although it can be an invaluable research tool, an immediate use for citation analysis may be as an assessment tool. In that role, it can be used to create both rankings and ratings for schools, departments within schools, business journals, individual faculty members, and prospective faculty members. Many of these data build upon each other, but each brick in the foundation comes from citation analysis.

Schools can be assessed based on total citations, average citations, median citations, or combinations thereof. Comparisons can be made to any set of peer schools one may select for any discipline. The assessment of research productivity at schools is based on the productivity of various constituent departments, and citation analysis can be used to make assessments at the department level with comparisons against peer departments or within the same department over time. Individual professors within a department can also be evaluated on the quality of research productivity, and the objective nature of citations analysis can be an important factor in evaluating research productivity component of promotion and tenure decisions.

Two other important assessment problems concerning personnel decisions can be addressed through citation analysis. The first concerns the evaluation of the vitae of prospective new faculty members, at

which time citation analysis can add a quality dimension to the assessment of publications included in a vita. The second concerns decisions about the quality of the journal in which a professor's article may appear. This is a difficult problem because individuals in one discipline may be called upon to assess the quality of an unfamiliar journal for the purpose of evaluating the work of a colleague outside of their discipline.

Schools, departments, journals, individual faculty members, and alumni are not the only elements that can be evaluated through the use of citation analysis. To paraphrase Vincent and Ross (2000), the opportunities for assessment using citations analysis are unlimited. It is hoped that this article provides some insight into the potential that the technique holds for providing an accurate assessment of a number of elements related to faculty productivity in US business schools.

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## ABOUT THE AUTHORS

Larry M. Robinson is Visiting Associate Professor of Management at the Jones Graduate School of Management at Rice University. His Ph.D. in Marketing is from The Ohio State University.

Roy D. Adler is Professor of Marketing at Pepperdine University in Malibu. He received his Ph.D. in Marketing from the University of Alabama. He and Prof. Robinson have worked together for 25 years, and provide Academic Assessment Services tailored to the needs of business schools.