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Career Research Productivity Patterns of Marketing Academicians

Thomas L. Powers
University of Alabama at Birmingham
John E. Swan
University of Alabama at Birmingham
Theodore Bos
University of Alabama at Birmingham
John Frank Patton
University of Alabama at Birmingham

Scholarly productivity is an important issue for all academic disciplines. Empirical examinations of career research productivity have not been conducted in the marketing discipline, however. This study reports the analysis and classification of total and career research publication activity for a cohort of 374 marketing academicians over a 20-year period. The analysis revealed seven different career patterns as well as substantial differences in overall levels of career research productivity. Patterns of productivity included those where academicians reached a peak productivity early or midway in their careers as well as those who produced at an increasing level over the course of their careers. Productivity levels were identified based on four groupings that included nonproducers, low producers (one to four articles), medium producers (five to nine articles), and high producers (10 or more articles). Approximately one-third of the cohort were nonproducers, one-third were low producers, and one-third were medium to high producers. J BUSN RES *1998. 42.75–86.* © *1998 Elsevier Science Inc.*

Research productivity is of great concern to academics and to their disciplines. Research productivity to a great extent defines the career path for the individual academician. For a discipline, research influences the development, direction, and creation of knowledge. In a number of disciplines, extensive research has been conducted that identified publication career patterns and taxonomies (Astin, 1984; Baldwin and Blackburn, 1981; Bayer and Smart, 1991; Bentley and Blackburn, 1990; Blackburn, Behymer, and Hall, 1978; Blackburn, 1991; Chung, Pak, and Cox, 1992; Lawrence and Blackburn, 1985; Pelz and Andrews, 1976). Career research productivity of marketing academicians has not been analyzed empirically, nor have career patterns been identified. The only empirical research on the productivity of marketing academicians has focused on the number of publications and citations in selected marketing journals by individuals and institutions (Bush and Grant, 1991; Fields and Swayne, 1991; Marquard and Murdock, 1983; Robinson and Adler, 1981).

The purpose of this study is to (1) report on the research productivity of a cohort of marketing academicians over their careers and (2) develop an empirical taxonomy of the patterns of career research productivity that exist in marketing. Development of a taxonomy of career research productivity patterns of marketing academicians may serve practical objectives. If, as the literature suggests, career productivity forms consistent patterns, knowledge of such patterns could provide information to assist academicians and administrators in planning and managing careers. As an example, knowledge of patterns that are associated with continued productivity would be valuable to administrators in making tenure decisions. In addition, productivity patterns could be used to develop guidelines for the productivity of junior and senior faculty. Likewise, faculty members could use career patterns for career planning by knowing the experience of other academicians. It must be kept in mind, however, that the patterns identified in this research apply only to the marketing discipline and its academicians.

The remainder of this article is organized as follows. In the first section, a review of the literature on academic career patterns is given. Next, based on the literature, possible marketing career patterns are proposed. In the third section, the research objectives and methods are described. Presentation

Address correspondence to Thomas L. Powers, Department of Marketing, Graduate School of Management, University of Alabama at Birmingham, Birmingham, AL 35294.

Journal of Business Research 42, 75–86 (1998)
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655 Avenue of the Americas, New York, NY 10010

ISSN 0148-2963/98/$19.00
PII S0148-2963(97)00099-4

of the results and findings form the fourth section, followed by a summary and conclusion.

Background

The building block of science is empirical generalization (Bass, 1993). As Hunt (1991) has noted, organizing phenomena into mutually exclusive and collectively exhaustive categories can serve as a critical first step in theory development. Hunt (1991) proposed three essential criteria that a taxonomy should satisfy: (1) specify clearly the phenomenon being classified and the properties of the phenomenon that are used as the basis for classification; (2) have categories that are mutually exclusive and collectively exhaustive; and (3) be useful. The taxonomy we report follows these criteria. The need for the development of a classification scheme as an initial step in understanding phenomena is increasingly recognized (Varadarajan, 1986). Given that little is known about the nature and causes of publication patterns in marketing, it is important to identify and classify patterns that may exist.

The concept of research career patterns is an important topic, and in a number of disciplines it has received increased attention (Bayer and Smart, 1991; Bentley and Blackburn, 1990; Lawrence and Blackburn, 1985). In the business field, this area has received little attention, although calls for such investigations have been made in the literature (Monroe et al., 1988). Although publications are important to the career of an academic, it must be kept in mind that publishing is only one part of an academic career that includes other activities such as teaching, service, consulting, and administrative work.

It is important to review the possible causes behind the patterns that we seek to identify. Three broad categories of variables have been proposed and tested as factors that cause different career patterns: ability, resources, and motivation. Ability has been posited to consist of innate differences between scientists in aptitude and learned skills. Learned skills as an influence on the productivity of chemistry faculty was suggested by Bayer and Smart (1991). They identified two stages that reflect the transition from an inexperienced researcher to one with knowledge and experience. The first stage is a *learning* stage, in which people learn the process of research applicable to their discipline. The level of productivity is low as efforts must be devoted to acquiring skills. The second stage is a *producer* stage, in which the individual applies the skills gained during the learning stage, and productivity is at a relatively high level.

Ability and access to resources have been treated in terms of the concepts of the *sacred spark* and *accumulative advantage* (Cole and Cole, 1973). The sacred spark notion posits that there are predetermined differences between scientists in their ability and motivation to do creative research (Allison and Stewart, 1974). Accumulative advantage holds that productivity of scientists is a function of recognition and resources that accumulate over time for a successful researcher. Accumulative advantage and sacred spark are reported to work in combination (Allison and Stewart, 1974) and produce a career pattern of increasing productivity over time (Merton, 1968). Researchers who are initially successful because of their ability and motivation to attract more resources become more productive as their careers unfold.

Motivational impacts on faculty productivity have been modeled in terms of the idea that career goals shift over the course of an academic career. Research productivity increases when research is a major goal and declines when other goals become more important. Shifting motivations of faculty and variations in research output have been found in a number of studies (Baldwin, 1979; Baldwin and Blackburn, 1981; Pelz and Andrews, 1976; Blackburn, Behymer, and Hall, 1978). Illustrative of this approach is the work of Blackburn (1991) in liberal arts and science departments. This researcher used life-stage theory, in which, at successive points in time, people have different needs that motivate behavior. Blackburn (1991) compared motivation with faculty allocation of effort devoted to research, scholarship, and service. They found that motivation did vary over academic careers and that there was a positive relationship between motivation and productivity.

Research Method

A taxonomy begins with data and seeks to form a classification empirically (Bailey, 1994, p. 34). The term *taxonomy* refers to both the process and the end result. This research uses a *numerical taxonomy*, a quantitative method for constructing taxonomies (Bailey, 1994, p. 6), often used in marketing (Frank and Green, 1968; McKee, Varadarajan, and Vassar, 1990; Moncrief, 1986). A means was needed to measure the research productivity of a cohort of individuals who completed their doctoral work and subsequently had a career as a marketing scholar. The major steps in the research method included defining career length, identifying marketing Ph.D. and D.B.A. holders who had academic careers, measuring productivity over each person's career, and analyzing productivity to identify possible patterns.

Career Length

Because the length of a faculty career will vary with individuals and because of the need to measure career patterns across a uniform time period for the individual's cohort, longitudinal studies of scientific productivity have used a fixed time period such as 20 or 25 years. A longitudinal analysis is preferable to a cross-sectional design to measure career productivity (Baldwin and Blackburn, 1981). In this study, a 20-year period was selected because that period of time is long enough to observe patterns and, as will be explained in more detail below, limitations of the data precluded a longer period.

Cohort of Marketing Academicians

Publication productivity was tracked 20 years for individuals who received a Ph.D. or D.B.A. in marketing from 1969

J Busn Res
1998:42:75–86

through 1972 as identified in *Dissertation Abstracts International*. A computerized reference service, the ABI/INFORM (Abstract Business Information) database, was used to track publications of the cohort. More than 1,400 journals are listed in ABI/INFORM (*UMI Titles List*, 1993). The researchers reviewed *Dissertation Abstracts International*, Volume 30 (1969–1970) through Volume 33 (1973), in a double blind review process to identify dissertations with a marketing topic.

Because the purpose of this research was to examine research productivity of doctoral degree holding marketing academicians, individuals that did not hold academic positions were deleted from the analysis by checking against the 1975 and 1992 *National Faculty Directory*. The initial cohort of 413 was reduced to 374, as 39 people had either not entered or had exited an academic career. In addition, a verification was made to ensure that the individuals forming the cohort were in marketing faculty positions. In some cases, this included more general departmental affiliations, which are common in some schools. Of the cohort of 374 individuals, 372 were men and two were women.

Base Periods for Cohort Identification and Measurement of Productivity

The 1969–1972 base period for identification of the cohort was used because it provided a reasonably large cohort and an opportunity to examine publication productivity over the maximum number of years possible. Measurement began with the initial availability of the ABI/INFORM database in 1971 and ended with data available through 1993. Twenty years of publication activity for each person was measured, starting with the third year after receipt of the doctoral degree. The third year was chosen to measure productivity because of an observed "lag" time, based on a sample from the cohort. The findings from the sample were that the first publication occurred 1.6 years from the receipt of the degree. Thus, two years occurred between obtaining a doctoral degree and initial publication activity. An analysis of the data revealed that for the two-year period after the date of the degree, the publications during that period represented 1.4% of the total sample's publications. This small percentage would have made a minimal impact on the results.

The year in which the doctoral degree was earned was designated year 1, with productivity measured for years 3 through 22. For example, for someone who received their degree in 1972, 1972 = career year 1, and career year 22 was 1993. The time frame maximized the available data, given the 1971 starting period of ABI/INFORM through the latest full year of publication data available in 1993. We were fortunate that the observed lag time matched the available data.

Measuring Productivity

Research productivity was measured by counting the number of multiple-authored or solo-authored publications listed by ABI/INFORM for each year of the 20-year period. ABI/INFORM includes the 10 journals considered to be the leading journals in the field of marketing (Luke and Doke, 1987), as well as a large number of other journals (ABI/INFORM, 1994). Some nonrefereed periodicals appear in ABI/INFORM such as *Business Week*, *Fortune*, and *Marketing News*. Because the analysis of scientific productivity has usually defined productivity in terms of refereed publications, all nonrefereed publications were identified and removed from the database.

To test the accuracy of ABI/INFORM, a random sample consisting of 10% of the authors ($n = 37$) was selected. Next, the sample was compared with the author indexes for the major marketing journals (*Journal of Marketing*, *Journal of Marketing Research*, and *Journal of Consumer Research*) over the 20-year period. Results indicated an error rate less than 0.5% (0.0044). The type of error observed was one in which an article appeared in a journal author index but did not appear in ABI/INFORM. To verify that ABI/INFORM also included behavioral journals, publications listed for the medium and high productivity authors listed in the PsycINFO (computer access of *Psychological Abstracts*) starting in 1984 were pulled. We then checked to see if the publications that these articles appeared in are included in the ABI/INFORM database. We found that 78% of these articles are included in ABI/INFORM. For the high producer group only, this was 83%. The articles that were in PsycINFO, but not in ABI/INFORM, represented 6.8% of the total articles for these authors.

Data Analysis

The development of a taxonomic classification can be unidimensional or multidimensional (Bailey, 1994, p. 4). In the development of the career productivity classification scheme, publication productivity is a unidimensional variable that was measured over multidimensional time periods. The first step in the longitudinal analysis was to group the 20 years of publications into four 5-year periods. Grouping has been a common step in the analysis of research productivity to identify patterns over time (Baldwin, 1979; Bayer and Smart, 1991). Changes in publication productivity are related to the changes in academic rank (Blackburn, Behymer, and Hall, 1978; Pelz and Andrews, 1976).

The four 5-year time periods compare approximately with levels of academic rank obtained by many people during their careers. The first 5-year period ended 7 years after receipt of the degree (recall that a 2-year lag was used). The seventh career year corresponds to the tenure decision reported in previous research (Kahn, 1993) and to guidelines of the American Association of University Professors. Thus, it is likely that many persons were at the assistant professor level for the first 5-year period. It has also been shown that for economists (many of whom are in business schools), promotion to full professor typically occurs 16 to 17 years from the date of their terminal degree (Kahn, 1993). Promotion to full profes-

sor would then correspond to the end of the third period/beginning of the fourth period in the present study.

Hunt's (1991) first criteria for classification is to specify clearly the phenomenon being classified and the properties of the phenomenon that are used as the basis for classification. The phenomenon classified is the 20-year publication record of refereed journal articles for the cohort of marketing academicians who received their doctoral degrees during 1969–1972. Journal articles produced in each of four 5-year time periods are the properties of the phenomenon used as the basis for classification.

Cluster Procedure

To identify patterns of career productivity, cluster analysis was used because it assigns observations to groupings characterized by similar patterns. Cluster analysis is commonly used in the development of taxonomies (Bailey, 1994, p. 7). The within-groups clustering method with the correlation similarity measure based on career pattern was used in this study (Aldenderfer and Blashfield, 1984). The correlation similarity measure was used to ensure that clusters would comprise similar publication patterns and not just similar publication records. For example, using a distance similarity measure, a publication record of 4-0-0-4 (each number records the number of articles published in the corresponding 5-year span) would not be placed in the same cluster as 8-0-0-8. Using the distance similarity measure, a 4-0-0-4 record is quite different from the 8-0-0-8 record; although in terms of the correlation measure, the 4-0-0-4 record is identical to the 8-0-0-8 record.

The literature on cluster analysis suggested an examination of clusters based on absolute (i.e., productivity) measures would not produce useful and interpretable patterns. The data were examined using correlations and absolute productivity as alternative distance similarity measures, and only the correlation measure yielded meaningful clusters. Inasmuch as the goal of the research was to determine patterns of productivity, not productivity per se, these results were not surprising. (For a more complete description of the use of the correlation coefficient as a similarity measure, see Aldenerfer and Blashfield, 1984, pp. 22–24).

To analyze patterns and changes in productivity over time, it was necessary for the cohort of academicians included in our analysis to have some minimum level of productivity. For example, if someone only published one or two articles, the possible patterns would be quite restricted. To obtain a cohort of terminal degree holders that had levels of productivity that could form a pattern over time, only those with five or more publications were examined using the cluster procedure. Furthermore, prior to clustering, the remaining subjects were divided into two groups: (1) those with five to nine articles over 20 years and (2) those with 10 or more articles over 20 years. This was done to determine whether the patterns for the five to nine article group occur in the same frequency as those patterns found in the 10-article-and-over group.

The major references describing the use of cluster analysis point out that the choice of the number of clusters is subjective and is often based on a large change in the similarity coefficient. However, that approach is based on distance similarity measures and not on the correlation measure used here. Because the data are discrete, composed of small integer values, and because some moving-average features are built into the data, traditional significance tests on the correlation coefficient are not appropriate. It was decided not to accept any clustering occurring at correlations below 0.40. This decision reduced the number of small clusters (with five or fewer members). To avoid any adverse effects from choosing too few clusters, the resulting patterns are presented in terms of median, rather than mean, article production. This greatly reduces the effect of outliers in the resulting clusters (Pfaffenberger and Patterson, 1987).

Results and Findings

Table 1 displays the number of articles and percentage of total articles for the 39 journals in which 10 or more articles appeared. These 1,286 articles represent 74.6% of all 1,725 articles by the 252 authors that published. Further, the 10 journals with the most articles accounted for 47.2% of all articles. The *Journal of Marketing Research* published 171 articles submitted by the cohort. Following this was the *Journal of Marketing,* which published 128 articles, the *Journal of Retailing,* which published 91 articles, the *Journal of Consumer Research,* which published 89 articles, and the *Journal of Advertising Research,* which produced 77 articles. The *Journal of Business Research,* the ninth most frequently appearing journal, published 48 of the cohort's articles.

Classification of Total Career Productivity

The classification procedure was done in two stages. The first stage used total career productivity, which resulted in two categories. The second stage used cluster analysis and produced seven categories classificd on productivity over the four 5-year periods. Combining both stages yielded a nine-category taxonomy.

In the first stage in the classification of productivity patterns, the cohort was classified on the basis of total career productivity over the 20-year period. The resulting classification appears in Table 2 and suggests a rule of thirds: about one-third of the marketing academicians did not have any productivity over the 20-year period; roughly another one-third published one to four articles; and the final one-third produced five or more articles. Those with no articles published represent non-producers. Low producers were defined as individuals with one to four publications; medium producers, five to nine publications, and high producers, 10 or more

J Busn Res
1998:42:75–86

Table 1. 10 or More Articles in Major Journals by the Cohort 1971–1993

Journal	*n*	Percent	Accum Percent	Publication Year
Journal of Marketing Research[a]	171	9.9	9.9	1964–
Journal of Marketing[a]	128	7.4	17.3	1934–
Journal of Retailing[a]	91	5.3	22.6	1925–
Journal of Consumer Research[a]	89	5.2	27.8	1973–
Journal of Advertising Research[a]	77	4.5	32.2	1960–
Business Horizons	59	3.4	35.7	1957–
Industrial Marketing Management	55	3.2	38.8	1971–
Journal of the Academy of Marketing Science[a]	50	2.9	41.7	1973–
Journal of Business Research[a]	48	2.8	44.5	1973–
Journal of Advertising[a]	47	2.7	47.2	1972–
Management Science	41	2.4	49.6	1954–
Journal of Consumer Affairs	28	1.6	51.2	1967–
Journal of Public Policy & Marketing	26	1.5	52.8	1982–
Journal of Health Care Marketing	24	1.4	54.1	1981–
International J of Physical Distribution & Logistics	22	1.3	55.4	1970–
Journal of Personal Selling & Sales Management	22	1.3	56.7	1980–
Decision Sciences	19	1.1	57.8	1970–
Journal of Small Business Management	19	1.1	58.9	1963–
California Management Review	18	1.0	59.9	1958–
Marketing Science	18	1.0	61.0	1982–
Columbia Journal of World Business	17	1.0	62.0	1965–
Michigan State University Business Topics	17	1.0	63.0	1953–1966
Akron Business & Economic Review	16	0.9	63.9	1970–1991
Journal of Purchasing	16	0.9	64.8	1965–
Arizona Business	14	0.8	65.6	1954–
Journal of International Business Studies	14	0.8	66.4	1970–
European Journal of Marketing	13	0.8	67.2	1967–
Logistics & Transportation Review	13	0.8	67.9	1965–
Journal of Business[a]	12	0.7	68.6	1928–
Journal of Professional Services Marketing	11	0.6	69.3	1985–
Transportation Journal	11	0.6	69.9	1961–
Entreprenesurship: Theory & Practice	10	0.6	70.5	1976–
Harvard Business Review[a]	10	0.6	71.1	1922–
International Marketing Review	10	0.6	71.7	1983–
Journal of Applied Psychology	10	0.6	72.2	1917–
Journal of Bank Research	10	0.6	72.8	1970–1986
Management International Review	10	0.6	73.4	1961–
Operational Research Quarterly	10	0.6	74.0	1950–1977
Sloan Management Review	10	0.6	74.6	1960–
Total	1,286	74.6		

[a] Top 10 marketing journals (Luke and Doke, 1987).

publications. Specifically, 32.6% of the cohort were nonproducers, 35.0% low producers, 15.5% medium producers, and 16.8% were high producers (Table 2). Among those with one or more articles, (252 researchers; 67.4% of the cohort) the median was four articles. Two academicians produced 35 articles, the maximum number.

Classification of Productivity over Time

Productivity patterns over time were analyzed by first examining annual productivity over the 20-year period for the low, medium, and high productivity groups and by then developing a taxonomy of productivity patterns for the medium and high producers. Figure 1 shows the mean number of articles per year for each of the productivity groups. The number of articles per career year for the low, medium, and high producers suggests a different general career productivity pattern for each of the three groups. The low producers reached their maximum annual productivity very early in their careers, 4 years after completing their dissertation, with 0.160 articles during career year 4 (Table 3). Productivity declined, but generally remained above 0.100 articles through career year 9, then declined but with some year-to-year variation. The medium producers initially increased their productivity, peaking in career year 7 with a mean of 0.569 articles, after which productivity declined. High producers generally increased productivity through year 11, then productivity declined.

Table 2. Authors by Productivity Group 1971–1993

Productivity Group	Number of Articles	Number of Authors	Percent
Nonproducers	0	122	32.6
Low producers	1–4	131	35.0
Medium producers	5–9	58	15.5
High producers	10 or more	63	16.8
	20 or more	16	4.3
	30 or more	3	0.8
Total		374	100.0

The second step in analyzing productivity over time was to develop a taxonomy of productivity patterns for the medium and high producers. Cluster analysis of the productivity patterns of the medium and high producers yielded 12 clusters, which suggests 7 basic productivity patterns as seen in Table 4 and Figure 2.

In this analysis, medians were used because they better represent the data (in many cases, means would reflect a large number of articles by a small number of academicians).

Description of the Taxonomy

FIRST PERIOD PEAKERS. A group of academicians in both the medium and high producer groups had their highest level of productivity in the first period, but much lower output in the remaining periods (Table 4 and Figure 2). As shown in Table 4, first period peakers were the largest medium producer cluster ($n = 21$) and second in size among high producers ($n = 14$).

SECOND PERIOD PEAKERS. Some medium and high producers had above average levels of first period productivity, which increased in the second period, followed by a sharp drop in productivity in the third period, with a further decline in the last period (Table 4 and Figure 2). Second period peakers were the second largest of the medium producers ($n = 9$), and the largest high producer cluster ($n = 2$); see Table 4.

THIRD PERIOD PEAKERS. Three clusters, one from the medium productivity group ($n = 8$) and two from the high productivity group ($n = 7$, $n = 5$), had a general pattern of output increasing or remaining constant from the first to the second period, increasing in the third period, and declining sharply in the last period for two clusters, with a modest fourth period decline for the remaining cluster (Table 4, Figure 2).

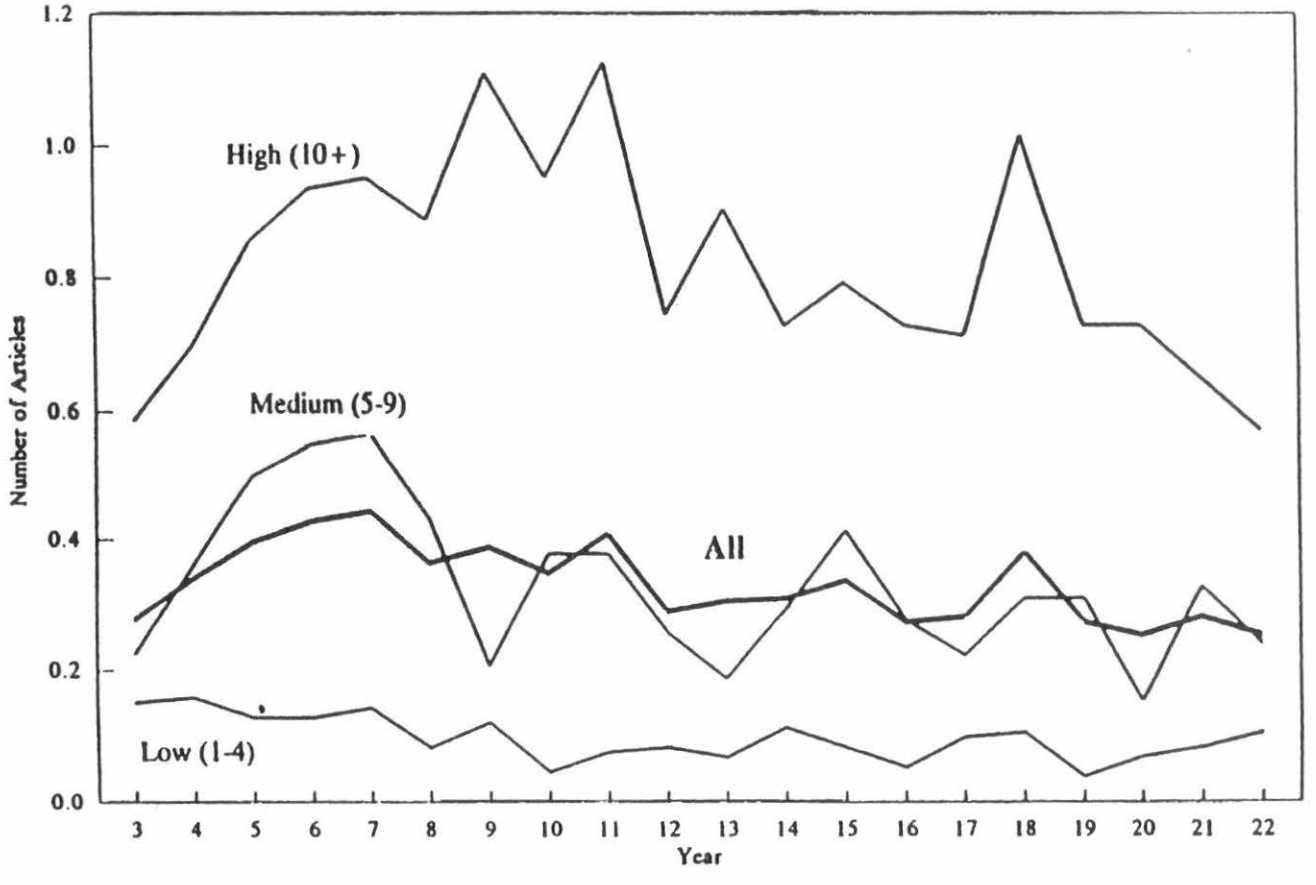

Figure 1. Mean number of articles by productivity groups.

LEARNERS. The fourth pattern included authors who had a low level of initial productivity, followed by a modest increase in the second period. The third period compared with the second period was either equal (medium group, $n = 5$) or showed a modest increase (high group, $n = 8$), whereas the fourth period was marked by a sharp increase in output.

MID-CAREER DECLINERS. The fifth pattern had a single cluster ($n = 8$) from the medium productivity category and was characterized by increases in the second and fourth periods (Table 4 and Figure 2).

RECOVERED INITIAL PRODUCERS. The sixth cluster, recovered initial producers, was a small group ($n = 3$) with high productivity. They had relatively high output in the first period (four articles), but fell to a lower level in periods two and three (one article), and then increased sharply in the last period (six articles).

MID-CAREER INCREASERS. The last pattern ($n = 7$) of medium producers can be described as mid-career increasers. This cluster had low initial output, which decreased in the second period, increased in the third period, and declined in the last period.

By use of cluster analysis, the categories developed above are mutually exclusive and collectively exhaustive, which meets Hunt's (1991) second criteria for the development of a taxonomy. The results obtained in this research are similar to the taxonomy developed by Bayer and Smart (1991) in their study of chemistry Ph.D.s. Their primary purpose was to identify collaborative styles in research; however, they also identified low producers, burnouts, as well as groups that were productive over the length of their careers.

Although the purpose of a taxonomy is to classify phenomena, and not to identify the reasons underlying the classification, it is appropriate to consider possible causes for the patterns observed. First, *it is common for initial productivity to be low*. The second and third period peakers, learners, third period peakers, and mid-career decliner groups all exhibited a pattern of relatively low first-period output with increased output in later periods. Those patterns accounted for 83 (68.6%) of the 121 active researchers included in the cluster analysis of productivity patterns.

The low level of initial productivity may be due to a number of factors. In the beginning of most academic careers, there is an initial adjustment period. This may include not only learning to conduct and successfully report research (Bayer and Smart, 1991), but other factors as well. New Ph.D.s often must relocate. This disruption may hinder their initial research efforts. The new academic must also teach classes, many of which may require time consuming course preparations. Another possibility is that although the new Ph.D. is diligently pursuing research, it may take a period of time before those publications find an appropriate outlet. Although an observed lag time was built into our analysis based on initial publications, other publications may take considerable time to go through the review process and finally be published.

Table 3. Mean Number of Articles per Year by Productivity Groups

Year	Low 1–4	Medium 5–9	High 10+	All
3	0.153	0.224	0.587	0.278
4	0.160	0.362	0.698	0.341
5	0.130	0.500	0.857	0.397
6	0.130	0.552	0.937	0.429
7	0.145	0.569	0.952	0.444
8	0.084	0.431	0.889	0.365
9	0.122	0.207	1.111	0.389
10	0.046	0.379	0.952	0.349
11	0.076	0.379	1.127	0.409
12	0.084	0.259	0.746	0.290
13	0.069	0.190	0.905	0.306
14	0.115	0.293	0.730	0.310
15	0.084	0.414	0.794	0.337
16	0.053	0.276	0.730	0.274
17	0.099	0.224	0.714	0.282
18	0.107	0.310	1.016	0.381
19	0.038	0.310	0.730	0.274
20	0.069	0.155	0.730	0.254
21	0.084	0.328	0.651	0.282
22	0.107	0.241	0.571	0.254
Career mean over 20 years	1.954	6.603	16.429	6.643
n	131	58	63	252

A second theme is that *it is common for researchers to experience a decline in productivity* in the fourth 5-year period (career year 18–22). This was the experience of first, second, and third period peakers, and mid-career increasers, some 77 (63.6%) of those who published five or more articles (Table 4). The literature discussed previously has suggested several possibilities for this result. These include a decrease in motivation, rewards, or a new commitment to other endeavors. Each of these factors may be at play, individually or in combination. For example, there is not necessarily a decrease in motivation per se, but rather there could be a redirection of that motivation to other aspects of the job from research. The actual causes for the patterns observed in this research will require future work to identify.

A final observation regarding career patterns is that *different research productivity patterns exist among marketing academicians*. Some people are initially very productive, whereas others reach their highest level of productivity later in their careers. As seen in Figure 2, a number of distinctive patterns exist. This finding is important in the context of the literature on career stages, which has been developed in marketing to understand sales careers. A career-stage model assumes that all or most people go through similar phases in their careers (Jolson, 1974). In the usual career cycle model, motivation and accomplishment proceed through a series of four stages over a career (Cron, 1984; Cron, Dubinsky, and Michaels,

Table 4. Median Articles by Period within Clusters and Median 20 Year Article Production and Cluster Size for Medium and High Producers

	Medium Producers							High Producers						
Period / Cluster	1 Yr. 3–7	2 Yr. 8–12	3 Yr. 13–17	4 Yr. 18–22	Median Articles	Cluster *n*	Size (%)	1 Yr. 3–7	2 Yr. 8–12	3 Yr. 13–17	4 Yr. 18–22	Median Articles	Cluster *n*	Size (%)
1st period peakers	4	1	1	0	6.0	21	36.2	6	3.5	3	1.5	12.5	14	22.2
2nd period peakers	2	3	1	0	7.0	9	15.5	3	7	3	2	15.0	26	41.3
3rd period peakers														
Cluster-1	1.5	2	3	0	6.5	8	13.8	4	4	6	3	15.0	7	11.1
Cluster-2	—	—	—	—	—	—	—	1	3	9	7	20.0	5	7.9
Learners	0	1	1	4	6.0	5	8.6	1	2	3	8	12.5	8	12.7
Mid-career decliners	0	3	1	2.5	7.0	8	13.8	—	—	—	—	—	—	—
Recovered initial producers	—	—	—	—	—	—	—	4	1	1	6	12.0	3	4.7
Mid-career increasers	1	0	3	2	5.0	7	12.1	—	—	—	—	—	—	—

1988; Cron, Jackofsky, and Slocum, 1993; Cron and Slocum, 1986), with performance that is initially low, increases as skills are learned, is maintained over a number of years, then declines (Cron and Slocum, 1986). The significance of our findings is that careers may be best modeled as a set of patterns, rather than a single common pattern.

Use of Career Patterns in Faculty Selection and Career Management

The three general patterns of career productivity provide practical information that can assist academicians and administrators in planning and managing careers in a number of ways. We offer some illustrations. If someone has four or more journal publications over career years 3–7, they are likely to be a high producer and remain relatively productive for the next 15 years. However, there is a possibility that the faculty member will be a first period peaker. After career years 3–7 and 8–12, someone with four or more publications in each of those periods is almost certain to be a high producer. Although it varies by pattern, the results also indicate that promotion to full professor is likely to result in a decrease in productivity after that point. Although the data do not permit the calculation of probabilities of continued high or low productivity that could be applied precisely to future sitations, knowledge at tenure time of general patterns that imply continued productivity would be valuable to administrators.

Productivity patterns can also be used by individual faculty members to evaluate their own career progress. Because it is common for initial career productivity to be low, a faculty member should not be unduly discouraged because productivity increases later in the career for a number of groups. Declining productivity in the fourth 5-year period is common, and although a concern, should not be considered a sign of failure. The usefulness of the taxonomy meets Hunt's (1991) third criteria.

Combining Productivity and Journal Quality

To assess the quality issue, an analysis was made of the major or "A" journals in marketing. These journals are widely considered to be the *Journal of Marketing*, the *Journal of Marketing Research*, and the *Journal of Consumer Research* (Luke and Doke, 1987). The distribution of both number of authors (113) and number of articles (388) that appeared in the major journals by author productivity category (of all journal articles) are presented in Table 5. For the low producer author category, 25% did produce a major journal article compared with 75% who did not. Slightly less than half (47%) of the medium producers in all journals did have a major journal article. By contrast, 84% of the high producers produced at least one or more major journal articles. In summary, as total career productivity in all journals increased, so did the probability that the marketing academician would publish in the major journals. Not only did high producers have more total articles, they also accounted for about 72% (279/388 as seen in Table 5) of the total major articles written by all three productivity groups.

It is also important to note the relative placement of articles in major journals over the careers of the cohort. There can be a difference in emphasis across a career, as early career productivity may focus on conferences. Although the identification of conference proceedings is outside the scope of the present study, we were able to examine the articles that were published in major journals over the cohort's careers (Figure 3). As seen in Figure 3, the percentage of articles that were

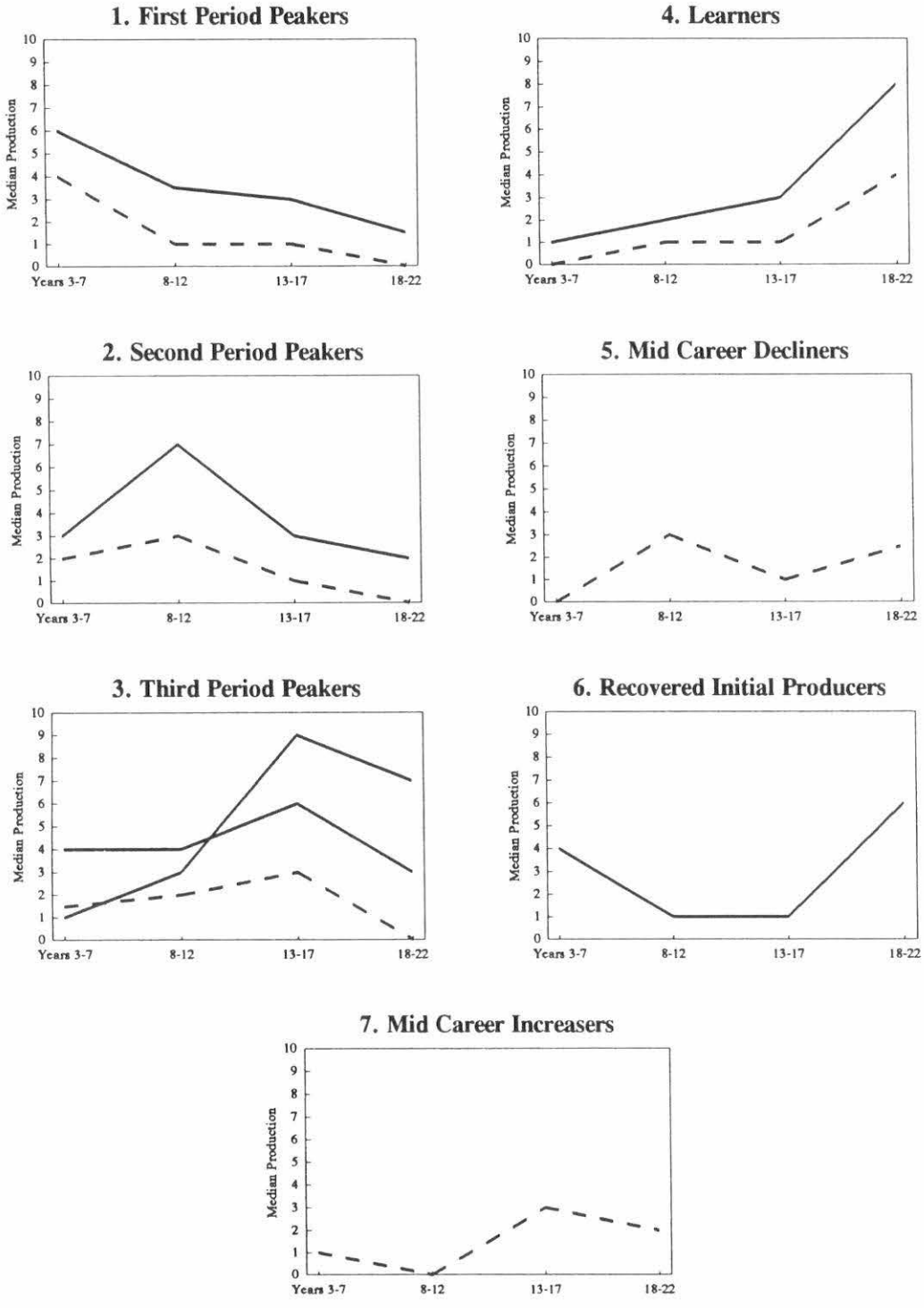

Figure 2. Career productivity patterns.

Table 5. Distribution of Authors and Articles by Productivity Category Published in Major Journals

Author Category (All Journals)	Number of Authors (Major Journals)				Total Authors	Total Articles
	0	1–4	5–9	≥10		
Low	98	33	0	0	131	49
	75%	25%	0%	0%	100%	
Medium	31	26	1	0	58	60
	53%	45%	2%	0%	100%	
High	10	29	17	7	63	279
	16%	46%	27%	11%	100%	
Total	139	88	18	7	252	388
	55%	35%	7%	3%	100%	

published in major journals steadily declined over the careers of the cohort members. In career year 1, 44% of all articles published were in major journals. This declined steadily, and by years 18–20, less than 10% of total publications were in major journals. Table 6 presents the number of major journal articles by author category.

The final question we address is how contributors to the marketing literature have fared in terms of combining both productivity and journal quality. To analyze career research activity in terms of both productivity and journal quality, a cross-classification of the three productivity categories (low, medium, and high) by the proportion of all articles written by each person that appeared in the top three journals in marketing was developed (see Table 7). The general pattern is that as productivity increases, journal quality increases. High producers, relative to the medium and low producers, are more likely to have some top journal articles. Only about 16% of the high producers compared with 76% of the low producers did not have any top journal articles. In addition, among all who had some major journal articles, high producers had a greater proportion of top journal articles. As an example, some 29% of the high producers had over 25% to 50% of their articles in major journals compared with 19% of the medium producers and roughly 8% of the low producers. The only exception was that about 10% of the low producers had from 75% to 100% top journal articles compared with about 3% of the high producers. However, a further analysis of those low producers found that they all had only one or two total articles. A possibility is that they achieved high quality by publishing primarily articles from their disserta-

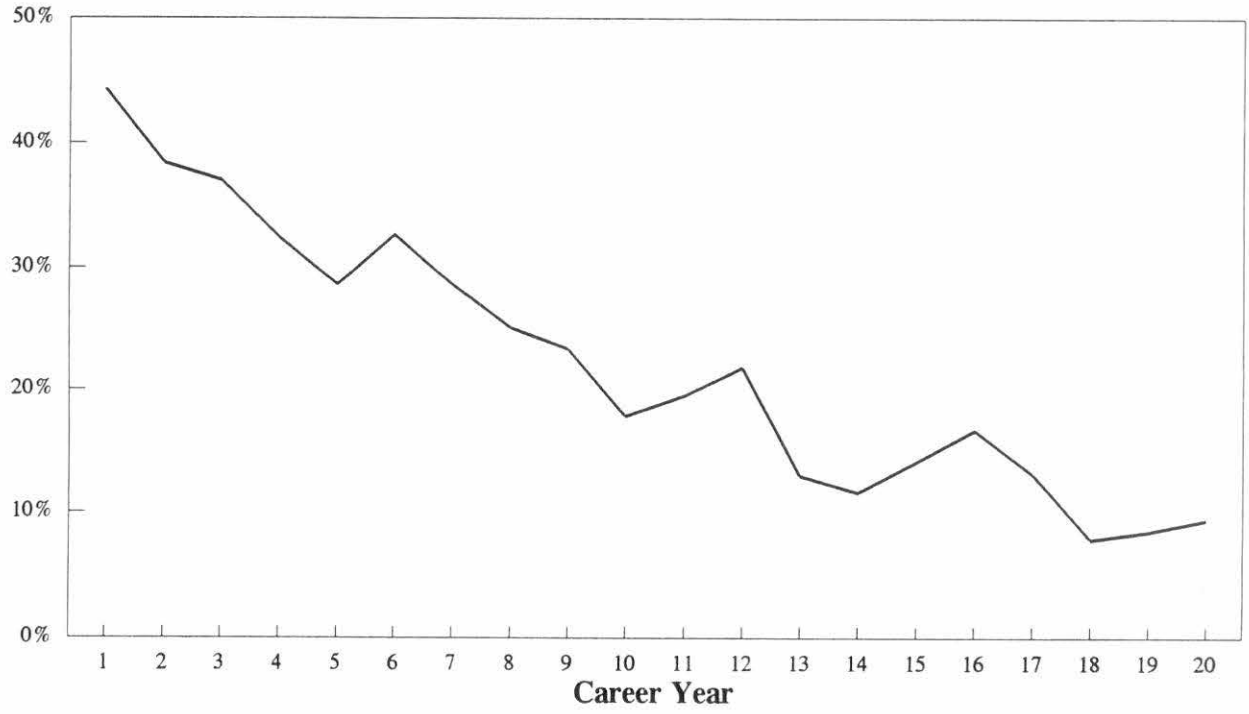

Figure 3. Major articles as a percentage of total production, all producers.

Table 6. Distribution of Authors and Articles Published: Major Journals

Number of Articles	Author Categories		
	Low	Medium	High
0	98	31	10
1	17	8	10
2	13	10	7
3	3	4	4
4	0	4	8
5	0	1	3
6	0	0	5
7	0	0	4
8	0	0	0
9	0	0	5
10	0	0	1
11	0	0	1
12	0	0	0
13	0	0	0
14	0	0	1
15	0	0	0
16	0	0	2
17	0	0	1
18	0	0	0
19	0	0	1
Total	131	58	63

tions. Overall, it appears that when evaluating research performance, higher productivity at an early career stage is indicative of an individual being much more likely to publish in top journals later in their career.

Limitations of the Research

Our purpose was to identify possible patterns of research productivity among marketing academicians to develop a taxonomy, not to test a theory. Although we have identified important productivity patterns, the causes of those patterns were not explained. We also did not differentiate between the types and levels of schools at which the authors taught. Thus, schools that do not emphasize research are included with schools where research is paramount.

Another limitation is the time period involved. By using a cohort of academicians that received their degrees more than 20 years ago, these individuals may not reflect productivity patterns of people who more recently became marketing academicians. Publishing expectations for marketing academicians have increased in the 1980s and 1990s. It is quite likely that a later cohort would have a higher number of publications. Only in the future will we be able to identify such patterns. Nonetheless, it is important to identify what patterns have existed in the past to understand scholarly behavior.

A final limitation is that the term productivity can have a number of meanings. In this research, we measured productivity in terms of the number of journal publications. It must be kept in mind that this is not the sole measure of career contributions to a discipline. Other activities such as consulting, executive education, and publishing in other outlets (books, proceedings, nonrefereed journals, newspapers, and magazines) are also important.

Table 7. Proportion of Articles in Major Journals by Productivity Group

	Productivity					
	Lo		Med		High	
Quality[a]	*n*	%	*n*	%	*n*	%
0	99	76	31	54	10	16
$> 0 \leq 0.25$	3	2	13	22	26	41
$> 0.25 \leq 0.50$	10	7	11	19	18	29
$> 0.50 \leq 0.75$	6	5	2	3	7	11
$> 0.75 \leq 1.00$	13	10	1	2	2	3
	131	100	58	100	63	100

[a] Proportion of all articles in major journals.

Summary and Conclusions

The present study has shown that a substantial proportion of the 374 marketing academicians who earned doctoral degrees from 1969 to 1972 did not publish at all or published a small number of articles during their careers. This represents a potential loss in the development of marketing knowledge. The numerical taxonomy developed in this study is in the form of career productivity patterns, which can be defined as levels and changes in research productivity over the researchers' careers. Data for this study started early in the academician's career, in the third year after receiving the doctorate, and extended for the next 20 years. The patterns observed in this study are generally congruent with other literature on academic productivity.

The taxonomy presented in this study provides the marketing discipline with knowledge of the productivity patterns for this cohort of individuals. Several patterns were observed that closely correspond to the traditional understanding of a career cycle consisting of productivity that is initially relatively low, then increasing, becoming stable, and finally declining. In some cases, however, the patterns identified reflect a gradual increase in productivity over the course of a career, or a complete failure to begin a viable publishing program. A major task for future research will be to identify what factors affect productivity and which productivity determinants, or combinations of determinants are most important.

This study has important implications for the marketing community as the findings indicate both a loss of potential marketing knowledge and provide a basis for some tentative suggestions. In particular, priority should be given to factors that are directly controllable by the community of marketing academicians. These factors include the journal review process, outlets for publication in comparison to manuscripts written, and recognition and rewards for research.

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