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Quantification and Statistics in Six Anthropology Journals

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The prominence of interpretive, literary, self-reflexive, and hermeneutic approaches in sociocultural anthropology in recent years has led some commentators to argue that the field has taken a humanistic turn. This article examines quantification and statistics in articles about sociocultural anthropology over the past several decades in six U.S. journals, assuming that the proportion of articles using these methods at any given time is a rough indicator of the balance between humanistic and scientific approaches. Although there has been a reduction in recent years in the proportion of articles using quantification and statistics in these journals, the overall drop has not been nearly as marked as many writers suggest. A notable shift away from quantification has occurred in the American Anthropologist, American Ethnologist, and Ethnology. The proportion of articles using quantification and statistics, however, has increased greatly in the Journal of Anthropological Research and remained about the same in Current Anthropology and Human Organization.

The issue of quantification—to count or not to count—is something of a litmus test in anthropology, revealing fundamental differences in epistemological underpinnings and methodology.

—Linnekin (1987:920)

The extent to which sociocultural anthropologists have used quantification and statistics in different eras reflects changing, hard to predict, intellectual fashions within the discipline. As readers of *Field Methods* are well aware, anthropologists have long debated the appropriate balance between scientific and humanistic methods. Many sociocultural anthropologists have tried to develop agreed-on techniques for describing certain aspects of culture and discovering cross-cultural regularities. These scientifically oriented anthropologists often attempt to quantify data and use statistical analyses to justify their conclusions. Other sociocultural anthropologists, however, emphasize the noncomparability of different cultures resulting from meaning systems unique to particular groups. These humanistically oriented

Kari Olsen, my research assistant in the spring of 1997, coded about half of the articles used in this study. The remainder of the articles were coded by myself in 1997 and by students in my course Anthropological Data Analysis in the fall semesters of 1994 and 1995.

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anthropologists also note that within a society, individuals differ in their accounts of events and cultural practices; there may be no reason to think that some accounts are “truer” than others. They further argue that the interplay between anthropologists and the people with whom they work greatly influences the descriptions of cultures presented in ethnographies. Sometimes doubting the existence of social facts that can be described by objective outsiders, many humanistic anthropologists avoid quantification and eschew statistics.

The prominence of interpretive, literary, self-reflexive, and hermeneutic approaches in sociocultural anthropology in recent years has led some commentators to argue that the field has taken a humanistic turn (McMillen 1994; Hakken 1995; Roscoe 1995). I examine here the use of quantification and statistics in articles about sociocultural anthropology over the past several decades in six major journals—*American Anthropologist*, *American Ethnologist*, *Current Anthropology*, *Ethnology*, *Human Organization*, and *Journal of Anthropological Research*.¹ My assumption is that the proportion of articles using these methods at any given time is a rough indicator of the balance between humanistic and scientific approaches in the practice of sociocultural anthropology in the United States.²

Anyone familiar with sociocultural anthropology and the philosophy of science will readily recognize some of the shortcomings of this indicator. An article can take a scientific approach without using quantification and statistics. Articles with lots of quantification may violate the canons of science in their selection, presentation, and assessment of evidence. Humanistically oriented anthropologists occasionally use numerical evidence as part of their arguments.

Nonetheless, I think that it is reasonable to assume that there is a strong relationship between the proportion of articles in a particular anthropological journal using quantification and the position of that journal on a loosely conceptualized humanistic-scientific continuum. Even those readers of *Field Methods* unconvinced by this argument may find the results of my research of some interest. Although many scientifically oriented anthropologists over the years (e.g., Johnson 1978; Peltó and Peltó 1978; Thomas 1986; Bernard 1994) have written about the advantages of quantification and statistics, it is ironic that we have little numerical information about the extent to which these methods have been used.

The data presented here show that there has been a reduction in recent years in the proportion of articles using quantification and statistics in the six journals. A notable shift away from quantification has occurred in the *American Ethnologist*, *Ethnology*, and the *American Anthropologist*. The overall drop, however, has not been nearly as marked as many commentators

suggest. The proportion of articles using quantification and statistics has increased greatly in the *Journal of Anthropological Research* and has remained about the same proportion in *Current Anthropology* and *Human Organization*.

METHODS

Some of the data used in this article were collected by students in a graduate course I teach at the University of Iowa. Students enrolled in Anthropological Data Analysis in the fall semesters of 1994 and 1995 analyzed changes over time in articles about sociocultural anthropology in the *American Anthropologist* (1955–1994) and *American Ethnologist* (1975–1994).³ They used systematic, random sampling (Bernard 1994:82–83) to select articles, which were coded with respect to topics examined, geographic areas covered, and methods used. As part of this exercise, the students recorded information about the use of tables, figures, and various statistical techniques. Class members coded 268 articles from the *American Anthropologist* and 124 articles from the *American Ethnologist*.

In the spring of 1997, I decided to incorporate the data the classes had collected into a more extensive study of the use of quantification and statistics in anthropological journals. I also wanted to compare the proportion of articles using quantification in these journals in 1995–1996 with that of the preceding two decades. My research assistant Kari Olson and I therefore examined the use of quantification and statistics in all articles published about sociocultural anthropology in 1975–1976, 1985–1986, and 1995–1996 in six journals. The combination of data sets from the class projects and our 1997 coding resulted in a data set of 1,276 articles written between 1955 and 1996. Because of our sampling methods, the articles were concentrated in 1975–1976 (329), 1985–1986 (295), and 1995–1996 (308).

The variables coded for each article were journal, year, volume number, first page, last page, type (article or research report), number of author(s), gender of author(s), whether a survey or census was carried out under the direction of the author(s), number of tables, number of tables including numerical data, number of figures, number of figures including numerical data, and whether descriptive, inferential, association, and multivariate statistics were used. The analysis presented here focuses on changes in the six journals over time in the use of different types of statistics and the inclusion of tables and figures with numbers.

Most articles having numerical data included descriptive statistics such as percentages, means, and medians.⁴ Inferential statistics present measures of significance most often associated with chi-square tests and correlation

coefficients. The great majority of association statistics were Pearson correlation coefficients; other such measures occasionally used included the Spearman and Kendall rank-order correlation coefficients, gamma, and Yule's Q. The most common multivariate statistics were factor analysis, multiple regression, multidimensional scaling, and cluster analysis.

After the data were coded, four binary variables were created concerning the presence or absence of certain statistical methods and numerical modes of presentation. These variables, coded as 1 for presence and 0 for absence, were STATS (whether an article included any use of statistics), IAMSTATS (whether an article included an inferential, association, or multivariate statistics), FIGN (whether an article included one or more figures with numbers), and TABN (whether an article included one or more tables with numbers). Finally, a summary variable, NQUANT, was created that is a binary measure of whether any quantitative measures or methods are used in an article. $NQUANT = 0$ if $STATS = 0$, $FIGN = 0$, and $TABN = 0$; otherwise, $NQUANT = 1$.

FINDINGS

Table 1 presents changes over time in the journals in the proportion of articles in which $NQUANT = 1$. About one-quarter of the articles in the *American Anthropologist* between 1955 and 1974 (the only journal coded for this time period) included some quantification. From 1975–1990, almost half of the articles coded in the six journals either used statistics or had one or more tables or figures with numbers. Nowadays, only about one-third of articles use quantitative methods.

The recent drop in quantification in the six journals can almost entirely be accounted for by changes in the *American Anthropologist* and the *American Ethnologist*. Tables 1–4 show the marked reduction in the use of quantitative methods in the *American Anthropologist* from 1995–1996. The proportion of articles including at least one table with numbers fell from 48% in 1987–1994 to 8% in 1995–1996 (see Table 2); the proportion using inferential, association, or multivariate statistics dropped from 44% to 0% during these years (see Table 3). Although changes in the *American Ethnologist* have been less sudden, there has been an equally sizable reduction in the use of quantitative methods in that journal. The proportion including at least one table with numbers fell from 44% in 1975–1976 to 6% in 1995–1996; the proportion using inferential, association, or multivariate statistics dropped from 22% to 0% during this period.

TABLE 1
Percentage of Articles Using Quantification or Statistics

%NQUANT = 1			%NQUANT = 1		
<i>Time Span</i>	<i>Percentage</i>	<i>n</i>	<i>Time Span</i>	<i>Percentage</i>	<i>n</i>
AA			ETH		
1955–1964	25	63	1975–1976	47	53
1965–1974	26	77	1985–1986	56	43
1975–1976	27	26	1995–1996	39	26
1977–1984	46	50			
1985–1986	73	44	HO		
1987–1994	50	52	1975–1976	53	80
1995–1996	17	36	1985–1986	67	87
			1995–1996	52	98
AE			JAR		
1975–1976	58	95	1975–1976	47	32
1977–1984	35	51	1985–1986	23	22
1985–1986	20	64	1995–1996	64	22
1987–1994	16	51			
1995–1996	8	73	All six journals		
CA			1975–1976	47	329
1975–1976	21	43	1985–1986	50	295
1985–1986	46	35	1995–1996	34	308
1995–1996	48	40			

NOTE: NQUANT = 1 if an article includes one or more of any of the following modes of numerical presentation: tables with numbers, figures with numbers, descriptive statistics, inferential statistics, association statistics, multivariate statistics. AA = *American Anthropologist*; AE = *American Ethnologist*; CA = *Current Anthropology*; ETH = *Ethnology*; HO = *Human Organization*; JAR = *Journal of Anthropological Research*.

Tables 2, 3, and 4 show that the overall reduction in quantification in the six journals in recent years can mostly be attributed to lesser use of descriptive statistics such as means, medians, and percentages. The proportion of articles including descriptive statistics, which was 41% in 1975–1976 and 48% in 1985–1986, fell to 26% in 1995–1996 (see Table 4). Despite the less quantitative orientation in recent years of the *American Anthropologist* and the *American Ethnologist*, the proportion of articles in the six journals including tables with numbers (see Table 2) and using inferential, association, and multivariate statistics (see Table 3) has decreased only slightly since 1975.

Four of the six journals have exhibited considerable variability since 1975 in the extent to which their articles have included statistics and tables with numbers. The proportion of articles in the sample from the *American*

TABLE 2
Percentage of Articles Including at Least One Table with Numbers

%TABN = 1			%TABN = 1		
Time Span	Percentage	n	Time Span	Percentage	n
AA			ETH		
1955–1964	21	63	1975–1976	40	53
1965–1974	25	77	1985–1986	44	43
1975–1976	24	26	1995–1996	23	39
1977–1984	30	50	HO		
1985–1986	55	44	1975–1976	39	80
1987–1994	48	52	1985–1986	44	87
1995–1996	8	36	1995–1996	46	98
AE			JAR		
1975–1976	44	95	1975–1976	38	32
1977–1984	33	50	1985–1986	23	22
1985–1986	14	64	1995–1996	50	22
1987–1994	12	51	All six journals		
1995–1996	6	73	1975–1976	36	329
CA			1985–1986	36	295
1975–1976	16	43	1995–1996	29	308
1985–1986	34	35			
1995–1996	43	40			

NOTE: TABN = 1 if an article includes at least one table with numbers. AA = *American Anthropologist*; AE = *American Ethnologist*; CA = *Current Anthropology*; ETH = *Ethnology*; HO = *Human Organization*; JAR = *Journal of Anthropological Research*.

Anthropologist with NQUANT = 1 increased from 27% in 1975–1976, to 46% in 1977–1984, and to 73% in 1985–1986 before falling to 50% in 1987–1994 and 17% in 1995–1996. The proportion of articles from the *American Ethnologist* in the sample with NQUANT = 1 has decreased steadily from 58% in 1975–1976, to 35% in 1977–1984, to 20% in 1985–1986, to 16% in 1987–1994, and to only 8% in 1995–1996.

Only about one-fifth of the articles in *Current Anthropology* from 1975–1976 included some use of quantification and statistics. During this period, *Current Anthropology* was perhaps the least numerically oriented of the six journals. However, the proportion of articles with NQUANT = 1 was 46% in 1985–1986 and 48% in 1995–1996. Nowadays, *Current Anthropology* publishes a higher percentage of articles using inferential and association statistics than any of the other five journals. Although the *Journal of*

TABLE 3
Percentage of Articles Using Inferential, Association, or Multivariate Statistics

%IAMSTATS = 1			%IAMSTATS = 1		
Time Span	Percentage	n	Time Span	Percentage	n
AA			ETH		
1955–1964	3	63	1975–1976	23	53
1965–1974	16	77	1985–1986	16	43
1975–1976	12	26	1995–1996	10	39
1977–1984	28	50	HO		
1985–1986	48	44	1975–1976	21	80
1987–1994	44	52	1985–1986	20	87
1995–1996	0	36	1995–1996	23	98
AE			JAR		
1975–1976	22	95	1975–1976	16	32
1977–1984	16	51	1985–1986	5	22
1985–1986	5	64	1995–1996	23	22
1987–1994	2	51	All six journals		
1995–1996	0	73	1975–1976	19	329
CA			1985–1986	20	295
1975–1976	9	43	1995–1996	16	308
1985–1986	26	35			
1995–1996	40	40			

NOTE: IAMSTATS = 1 if an article includes one or more of the following: inferential statistics, association statistics, multivariate statistics. AA = *American Anthropologist*; AE = *American Ethnologist*; CA = *Current Anthropology*; ETH = *Ethnology*; HO = *Human Organization*; JAR = *Journal of Anthropological Research*.

Anthropological Research was in the middle of the pack with respect to quantification in 1975–1976, it was by far the least numerically oriented of the journals in 1985–1986. In contrast, 64% of the articles in the *Journal of Anthropological Research* in 1995–1996 included some quantification, a larger proportion than any of the other journals.

Human Organization and *Ethnology* have varied less in their use of quantification. *Human Organization*, the journal of the Society for Applied Anthropology, has consistently ranked high in the proportion of articles including tables with numbers and using descriptive, inferential, association, and multivariate statistics. *Ethnology* at one time was known for its use of quantified methods. In a recent commentary in the *American Anthropologist*, Murray Wax (1997:19) remarks that “a great deal of correlational research was based on HRAF [the Human Relations Area Files] and published in the

TABLE 4
Percentage of Articles Using Different Types of Statistics

	1975–1976		1985–1986		1995–1996	
	%	n	%	n	%	n
Descriptive						
AA	27	26	64	44	14	36
AE	45	95	20	64	7	73
CA	14	43	46	35	43	40
ETH	43	53	51	43	15	39
HO	51	80	67	87	35	98
JAR	47	32	18	22	64	22
All six journals	41	329	48	295	26	308
Inferential						
AA	8	26	45	44	0	36
AE	19	95	5	64	0	73
CA	9	43	26	35	40	40
ETH	13	53	16	43	8	39
HO	19	80	17	87	20	98
JAR	16	32	5	22	18	22
All six journals	16	329	19	295	14	308
Association						
AA	8	26	32	44	0	36
AE	16	95	2	64	0	73
CA	9	43	11	35	30	40
ETH	17	53	9	43	10	39
HO	16	80	9	87	9	98
JAR	6	32	5	22	14	22
All six journals	14	329	11	295	9	308
Multivariate						
AA	0	26	16	44	0	36
AE	7	95	2	64	0	73
CA	7	43	3	35	13	40
ETH	13	53	5	43	3	39
HO	8	80	5	87	12	98
JAR	0	32	0	22	14	22
All six journals	7	329	5	295	7	308

NOTE: AA = *American Anthropologist*; AE = *American Ethnologist*; CA = *Current Anthropology*; ETH = *Ethnology*; HO = *Human Organization*; JAR = *Journal of Anthropological Research*.

journal *Ethnology*.” Wax is referring to the period when George Peter Murdock edited *Ethnology*. Murdock had only recently relinquished control of the journal in 1975–1976, the first time period covered in my analysis. The proportion of articles in *Ethnology* using quantification at that time—perhaps

surprisingly—was only about average among the six journals. The numerical orientation of *Ethnology*—as measured by NQUANT, TABN, and IAMSTATS—was very similar in 1985–1986 to what it had been in 1975–1976. Nowadays, *Ethnology* is less numerically oriented. *Current Anthropology*, *Human Organization*, and the *Journal of Anthropological Research* all included a higher proportion of articles using quantitative methods from 1995–1996. However, *Ethnology* was considerably more numerically oriented during these years than the *American Anthropologist* and the *American Ethnologist*.

DISCUSSION

In recent years, there has been a striking turn away from quantification in articles about sociocultural anthropology in the *American Anthropologist* and the *American Ethnologist*. Because these are influential flagship journals of the American Anthropological Association and the American Ethnological Society, one might easily conclude that humanists (or at least nonquantifiers) are hegemonic in the practice of sociocultural anthropology in the United States. However, the almost complete absence of quantification and statistics in the *American Anthropologist* and *American Ethnologist* in the past several years does not reflect current methodological practice among sociocultural anthropologists. The proportion of articles including tables and figures with numbers and using various statistics has increased markedly in the past decade in the *Journal of Anthropological Research*, remained about the same in *Current Anthropology* and *Human Organization*, and dropped somewhat in *Ethnology*.

The data presented here suggest that the gap between quantifiers and nonquantifiers in sociocultural anthropology may be widening. There was a striking drop in the use of simple descriptive statistics from 1985–1986 to 1995–1996. This indicates to me that fewer contemporary sociocultural anthropologists feel it important to use numerical evidence in support of their arguments. However, the proportion of sociocultural anthropologists using more complex statistical techniques in their articles has remained more or less constant over the years. Such statistically oriented sociocultural anthropologists are now more methodologically distinct from their colleagues than they were a decade ago.

Several of the journals analyzed here have undergone major shifts over the years in the proportion of articles including quantification. Although these changes partly reflect intellectual trends within anthropology, the theoretical and methodological orientations of particular editors are also relevant.⁵ Some

editors have been scientifically oriented in their own work and favored the use of quantitative methods and statistics; others have been explicitly humanistically oriented and had little interest in such analytic techniques. Most editors, I think, have taken an eclectic theoretical stance and favored a mix of quantitative and qualitative methods.

I suspect that only a few editors have consciously set out to change the methodological orientation of a journal. Nonetheless, authors are doubtless more likely to submit a manuscript to a journal of which the editors are thought to be sympathetic to their theoretical and methodological approach.⁶ Furthermore, after a new editor has put out a few issues, potential contributors begin to judge whether their manuscripts fit the current version of a journal. For example, authors of manuscripts including statistics and tables with numbers nowadays see plenty of articles using quantitative methods in *Current Anthropology*, *Human Organization*, and the *Journal of Anthropological Research*. They may think—perhaps correctly—that their manuscripts are more likely to be accepted by these journals than by the *American Anthropologist* or the *American Ethnologist*.⁷

In the April 1997 *Anthropology Newsletter*, the incoming editor of the *American Anthropologist* argued that the significance and authority of anthropology rests on basic empirical research on past and present human populations. Robert Sussman (1997:3) noted that such “empirical research can be both qualitative and *quantitative* [emphasis added] and the combination of these two approaches is what makes anthropological research unique.” It will be interesting to see if quantification and statistics become more prominent in the *American Anthropologist* in the years to come.

NOTES

1. I selected these journals because they seemed to me to be the most prominent U.S. journals publishing articles about sociocultural anthropology over the past several decades. I later discovered a controversial study (Garfield 1984) that includes tables suggesting that these were in fact the most cited U.S.-based journals of this type in 1982. I know of no more recent relevant study.

2. The great majority of contributors to these journals are sociocultural anthropologists affiliated with U.S. universities. *Current Anthropology* strives to be an international journal and may have a somewhat higher proportion of non-U.S.-based authors. *Human Organization* includes some articles written by nonanthropologists that may have been included in the sample.

3. I chose 1955 as a starting date for the *American Anthropologist* because I wanted the project to cover articles from four full decades (1955–1994). I did not include 1974 articles from the *American Ethnologist* (the first year of publication for that journal) so as to restrict the sample from that publication to two full decades (1975–1984 and 1985–1994). Although determining

whether an article was primarily about sociocultural anthropology was usually unproblematic, some difficult decisions had to be made about articles that could be classified as linguistic anthropology. In most cases, such articles were included in the sample.

4. Determining whether an article including descriptive statistics was perhaps the single most problematic coding decision. Many articles include simple counts (e.g., population figures) but no summary statistics such as means, medians, or percentages. Such articles were coded as not including descriptive statistics. However, articles that presented even one simple summary statistic (e.g., a percentage) were coded as including descriptive statistics.

5. I conducted a separate analysis (too complex to be presented here) showing that sizable shifts in the proportion of articles using quantified methods in the *American Anthropologist* and the *American Ethnologist* have often been associated with changes in editors.

6. My discussion of the influence of editors is frankly speculative. I am unsure how much most prospective authors know about the theoretical stances of journal editors. Moreover, the influence editors have over the contents of their journals is unclear and doubtless variable. Editors select manuscript reviewers and make final decisions about whether to accept particular articles. However, they cannot influence the evaluations of the reviewers and have only limited control over the types of articles submitted to their journal.

7. Obviously, the content of a manuscript is not the only factor affecting whether it is accepted by a particular journal. The proportion of submitted manuscripts that are accepted varies considerably among journals and over time. The *American Anthropologist* and the *American Ethnologist* have historically rejected a high percentage of submitted manuscripts.

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