# Introduction

For several hundred years, encyclopedias have been a respected mode of publication. In them, authors judged to be experts attempt to present the best of learned knowledge and scientific evidence that they have to offer. The original Greek meaning of the word *encyclopedia* is typically translated into English as "general education." In today's language—and using the perspective offered in the master of all modern encyclopedic work—encyclopedias are "self-contained reference works" with two aims: to include up-to-date knowledge about a particular discipline or group of disciplines and to make this knowledge conveniently accessible.

Encyclopedias have a history dating to ancient times. For the contemporary Anglo-American world, the *Encyclopaedia Britannica*, whose first edition appeared in 1768–1771, is the hallmark of a general encyclopedia. In the German language, a similar role was played by the six-volume *Conversations-Lexicon* (1809) that was later transformed into *Der große Brockhaus*. Regarding compendia that are devoted to more limited aspects of knowledge, Western scholars often underscore the significance of the British *Cyclopedia* (1728) by Ephraim Chambers and the French *Encyclopédie* prepared subsequently by Diderot and d'Alembert (1751–1765). In line with its premier standing as a general encyclopedia, the *Encyclopaedia Britannica* contains an excellent entry on the history and nature of encyclopedias. For the present encyclopedia, the entry by Alan Sica (*Encyclopedias, Handbooks, and Dictionaries*) was invited to accomplish a similar feat. In that entry the reader will find much information about the role of encyclopedias and kindred publications in the evolution of the social and behavioral sciences.

Historically, like the evolution of the sciences themselves, the meaning of encyclopedias has changed and will continue to change, especially in light of the transformations in methods of representing scholarly knowledge occasioned by the rise of modern modes of information. Originally, for instance, there was no widely accepted differentiation between encyclopedias, handbooks, or dictionaries. In today's world, each has become a recognizable type in itself.

Encyclopedias are designed to offer comprehensive, well-organized, integrative, interthematic, and intensively cross-referenced presentations in depth. Dictionaries supply definitions of words and concepts without a serious effort at integration and depth. Handbooks, as a rule, identify the current frontiers of knowledge without a special commitment to comprehensiveness and the historical development of knowledge. At the same time, this differentiation among encyclopedias, dictionaries, and handbooks is dynamic and subject to overlap and variation.

When asked to become editors-in-chief of this work, we did not spend much time reading about the history of encyclopedias and their special function in the history of science. We relied instead on our general understanding of the concept of an encyclopedia. As we familiarized ourselves more and more with that concept and its historical evolution, however, our inclinations turned out to resemble closely what encyclopedia scholars have identified as the core of the encyclopedia concept.

In undertaking this enterprise, we assumed that scientific encyclopedias are meant to be comprehensive accounts of a given field with primary emphasis on catholicism and on truth-value of the arguments and the evidence. We also assumed that it is important to locate current knowledge in historical perspective. We wanted to treat this encyclopedia more as a repository of established knowledge than as a visionary attempt to predict the future. Moreover, we conceived of this encyclopedia as a way to highlight efforts at integration and reveal the dynamics of current thinking about a given topic. Therefore both disciplinary differentiation and transdisciplinary integration were in the forefront of our thinking. Finally, we were committed to showing the relevance of the social and behavioral sciences for questions of application and social policy. We thought that the time had come for the social and behavioral sciences to present themselves as contributors to the public good, beyond their role as intellectual partners in science and scholarship.

With these general perspectives in mind, we asked the contributors to prepare entries that were fair, comprehensive, and catholic in approach. While asking them to analyze current trends that seemed to shape future lines of inquiry, we did not suggest that they become speculative prognosticators. Rather, we were striving for:

(a) secure knowledge, realizing that security of knowledge is a dynamic and relative term
(b) knowledge with balance and comprehensiveness

(c) knowledge that is integrative rather than fragmented
(d) knowledge that places the evidence into historical and theoretical context
(e) knowledge that highlights connections between topics and fields
(f) knowledge that combines, where possible, theory and practice.

To convey these aims, we prepared the following statement of "guidelines for authors," reminding them at the same time that these were not a straitjacket, that there could be no single format for all entries, and that different topics and different authors would make for a diversity of types of entries:

To be of maximum educative value to readers, an entry should include the following ingredients:

- A clear *definition* of the concept, idea, topic, area of research, or subdiscipline that constitutes the title of the entry (e.g., the definition of *alienation* or *intelligence*).
- The *intellectual context* of its invention or rise as a problematic concept or area of study in the discipline or disciplines in which it has received attention. In other words, what considerations have made it *important* (e.g., in the case of alienation, the Marxian theory of capitalist organization of technology and work; in the case of intelligence, the institutional contexts such as schools in which psychometric assessment of intelligence evolved).
- *Changes in focus or emphasis* over time, including the names of the most important theorists and researchers in these transitions. This account should give the reader an idea of the *history* of the concept or topic (e.g., the transformation of alienation from a specific, technical term in Marxian theory into a general social-psychological concept important in industrial sociology, industrial psychology, and other subfields; or the enrichment of the concept of psychometric intelligence by methods and processes associated with cognitive and developmental psychology).
- *Emphases in current theory and research*. The author should trace major developments and empirical results, changes of direction of research, falling off of interest, as well as special salience in certain traditions (e.g., alienation in the analysis of the internalization of the labor process), or in certain regions of the world (e.g., alienation in sociology and political science in newly developing countries); or rejection of the concept of intelligence as an index of talent, as well as the differentiation of intelligence into its factual and procedural knowledge parts to reflect the impact of culture and cultural variation.
- *Methodological issues or problems* that are evident in research on the concept, topic, or area of study.
- *Probable future directions of theory and research*, insofar as the author can determine and is confident in predicting them.

**Why a New Encyclopedia Now?**

In the early 1990s Elsevier Science publishers began to plan an end-of-millennium publication of a completely new encyclopedia of the social sciences. The idea for such a publication had been in the air among some publishers for several years, but none had been ready to make a commitment, in large part because of the enormous investment required to carry out such a project.

Aside from financial questions, there are three sets of justifications for a new encyclopedia. The first is the passage of time. Two other encyclopedias covering similar ranges of subject matter appeared in the twentieth century: *Encyclopedia of the Social Sciences* (Seligman and Johnson, 1930–1935) and *International Encyclopedia of the Social Sciences* (Sills, 1968). If we invoke the logic of "one-encyclopedia-every-one-third-century," a new, beginning-of-century publication seems indicated.

The second justification has to do with quality control of knowledge. New modes of publication such as the Internet—with its tremendous increase in the quantity of publicly available information—are badly in need of better control of the quality of the knowledge produced. Encyclopedias are meant to be methods of quality control, offering some insurance against information that has not achieved a certain level of rational or empirical validity. The primary strategy for achieving good quality in an encyclopedia is a peer-based selection of experts as authors and a peer-review system for submissions.

The third and main motive for a new encyclopedia, however, must be a scientific one. Has there been sufficient growth of knowledge and new directions of research to justify it? On this score neither we nor any of our advisors nor the publishers have ever expressed doubt: the

answer is strong and positive. Early in our thinking about the encyclopedia we put down the following points as justifying a new stocktaking:

- the astonishing growth and specialization of knowledge since the 1960s
- the rapid development of interdisciplinary fields
- the expansion of interest in policy and applications
- the internationalization of research in response to the dynamics of globalism
- the impact of the computer and information revolutions on theory and practice
- the new web of connections between the social and behavioral sciences on the one side and the biological life sciences on the other.

We see no need to alter these assessments at this moment of publication of this encyclopedia. If anything, we are convinced that new developments in information technology require a special effort by the scientific community to make sure that its best knowledge and practice are available to as many segments of society as possible.

**Planning for the Encyclopedia**

We noted how important the peer-review system is for achieving a high level of quality—quality with regard to the topics to be included, the scientific experts selected as authors, and the evaluation of the text that experts produce. In the following paragraphs, we describe some steps that we took to achieve goals of comprehensiveness and fair coverage, but above all quality control. We begin with the planning phase.

Much of the planning for the new encyclopedia took place around and during three meetings.

- Smelser hosted the first meeting, initiated by Elsevier Science, at the Center for Advanced Study in the Behavioral Sciences, Stanford, California, October 14–15, 1995. The publisher had not yet decided finally whether to publish such an encyclopedia, and the purposes of the meeting were to sound out experienced social and behavioral scientists (mainly American) on the feasibility of the project, and—if it seemed feasible—to think about its organization.
- Some months later, Elsevier committed itself to the project, and, with Smelser's cooperation, organized a second planning meeting, attended mainly by European scholars, at the Swedish Collegium for Advanced Study in the Social Sciences in Uppsala, September 26–27, 1996. The Elsevier organizers also approached Smelser about assuming the editorship-in-chief just before the Uppsala meeting. He accepted this invitation soon after that meeting, and some months later Baltes was persuaded to join as co-editor-in-chief. The reasons for having co-editors were three. First, the scope and magnitude of the project made it nearly impossible for one person to manage it. Second, a team of chief editors could better cover the full spectrum of the behavioral and social sciences. Even though we overlapped in many ways, Baltes's expertise encompassed mainly the behavioral sciences, Smelser's the social sciences. Third, we needed international coverage. Everyone agreed that if the term "international" was to be taken seriously, there had to be co-editors from North America and Europe.
- The third planning meeting was held in Dölln/Berlin, July 16–18, 1997, with Baltes as host. That meeting brought in more advisory scholars from continental Europe and included a larger number of behavioral scientists to elaborate on the coverage of those sciences. Baltes and Smelser had been in continuous contact with one another after Baltes agreed to be co-editor, and after the Dölln meeting we completed the basics of the encyclopedia's organization.

During the later planning activities, Ursula M. Staudinger was a key consultant in helping us set up a data bank that facilitated recruiting international authors and monitoring other aspects of planning such as assuring substantive coverage and tracking the gender distribution of authors. She continued this role in the development of some sections, for example Ethics of Research and Applications.

**The Intellectual Architecture of the Encyclopedia**

In keeping with convention, this encyclopedia lists its entries in alphabetical order. Such a practice typically obscures any intellectual structure that has been built into the work. Behind the alphabetical ordering, however, lies a complex but definite architecture—the product of many

strategic decisions we made in the planning phases and throughout the development of the encyclopedia. In this section we make explicit these decisions and provide our rationale for them.

*Scope of the Encyclopedia*. At the second planning meeting, one question dominated the discussion: "Do we want to include the behavioral sciences and, if so, in what ways?" The 1935 and 1968 renditions of the encyclopedia had only "social" in their titles, and among the behavioral sciences only psychology was adequately represented. No final answers were generated at that meeting. When Baltes joined as the second editor-in-chief, we re-confronted the issue and decided on the full inclusion of the behavioral sciences. At the third meeting in Dölln/Berlin, we solidified and elaborated that decision. This meant including "Social and Behavioral" in the title of the encyclopedia. It also meant dividing psychology into three distinct sections—all other disciplines were granted only one—and including a number of behavioral fields bordering on the biological sciences: evolutionary science; genetics, behavior, and society; behavioral and cognitive neuroscience; psychiatry; and health.

The main reasons for these decisions were first, that the subject-matters of the social and behavioral sciences blend into one another; second, that both are driven principally by the norms of scientific inquiry; third, that great advances in knowledge had occurred in some of the biologically based behavioral sciences; and finally, that including both branches in our huge enterprise—bound to be regarded as canonical in some quarters—would counteract what we perceived as an unwelcome drifting apart of the social and the behavioral sciences over the past decades.

Indeed, we believe that a new and proper perspective in the social and behavioral sciences demands more explicit consideration of the biological and cultural "co-construction" of behavior and society than has been true in the past (Baltes and Singer 2001). Over the last decades the relations between the social and biological sciences have suffered from an unproductive measure of defensiveness, hostility, and territoriality—observable in many places but noticeable among social scientists. This has certainly been true with respect to the role of genetic factors in the production of culture and social differentiation. Therefore, we believe firmly that a new Encyclopedia of the Social and Behavioral Sciences must reflect a new and more open view on the interactions and transactions between genetic, brain, behavioral, social, and cultural factors and processes.

*Biographical Entries*. We may discern two significant modes in the history of presenting scientific knowledge: person-centered and idea-centered. As a general rule, the more developed a field, the more it appears to be guided by representations of concepts and methods rather than individuals. Nevertheless, there are exceptions. We cannot grasp the idea of relativity theory in physics without taking Einstein into account. And what is modern evolutionary theory without Darwin, historical materialism without Marx, or behaviorism without Skinner?

Regarding the role of individuals as producers and organizers of scientific knowledge, we had before us two different models. The 1935 rendition of the encyclopedia, in common with many early encyclopedias, contained many brief biographies of figures in the social sciences—more than 4,000 in its 15 volumes. The editorial board of the 1968 encyclopedia considered this number excessive, and decided on some 600 biographies of "major" figures. They reasoned that if more were included, many would go unread, and that it would be difficult to locate authors for many minor figures. The editors of the 1968 edition decided to include biographies of living persons on grounds that "readers should not be deprived of information about a man because he happened to live a long time" (Sills 1968, p. xxv). Still, the editors did not include anybody who had been born after 1890. Sills reported that one member of the editorial advisory board argued against *any* biographical entries, because "they are out of place in a topically and conceptually oriented reference work" (Sills 1968, p. xxv).

The issue of including biographical entries was debated at the first planning meeting in 1995. At that time, the consensus was that the new encyclopedia should not contain any. The main scientific arguments for eliminating biographies were that the representation of the social and behavioral sciences should be organized around knowledge rather than persons, and that biographical entries tend to be fraught with political and emotional contests around persons to be included and excluded, especially if living scholars are among the biographees. We were also aware of the argument that reviewers of encyclopedias—in part, because of the vastness of the reviewing task—tend to focus their critiques on the biographical section and fall to complaining that one or another of their favorite great minds was not included. And who

would want to set up an entire encyclopedia for such narrow and possibly parochial critical reactions?

The issue of biographies remained dormant for a time, but was re-raised by Baltes when he joined the editorial team. He argued that knowledge in the social and behavioral sciences cannot be grasped without appreciating the biographies of its founding figures. Furthermore, he argued that the mental representation of the learning student is helped by reference to personages and their clearly articulated views—in other words, we think not only in the abstract, but very much of distinctive people. Why should we make it more difficult than necessary to understand the social and behavioral sciences? In the end we compromised. There would be 150 biographical entries of greater length than those in the earlier encyclopedias. To assure historical distance, these would be limited to deceased scientists and scholars.

Restricting the number in this way created a new problem of inclusion: how to decide on the very small number of really towering figures in each discipline and tradition of thought? It was easy to identify Darwin, Boas, Malinowski, Freud, Wundt, James, Skinner, Marx, Durkheim, Weber, Marshall, Fischer, and Pearson, but where to go from there? To develop satisfactory answers to these questions, we appointed a section editor for biographies, Karl Ulrich Mayer, who together with us sought and relied on multiple sources of advice before coming to final decisions. We are aware of the residue of arbitrariness in these decisions, and acknowledge that any other group of editors would have produced an overlapping but different list from ours.

Because of the special significance of the biographies and likely conflict over their selection, we offer a brief account of how the selection process was carried out. We first had to select a kind of person who could be entrusted with the responsibility—a person with a broad and historical knowledge base as well as extensive contact across disciplines. We were also concerned about fairness and openness toward all disciplines. In Mayer we found a person who invested himself into generating a list of a maximum of 150 biographees. We are especially grateful for his special skills, knowledge, and practical vision in accomplishing this task.

We asked Mayer to consider the following criteria: 7–10 persons per discipline; only deceased people should be included; there should be evidence for intellectual influence into the present; people with visibility and impact beyond one discipline should be favored. We also suggested that the biographies should focus on the history of ideas more than on chronological accounts of their work. Finally, we asked that an effort be made to include figures who remain relevant for contemporary social and behavioral science.

Mayer carried out several lines of advice and consultation and bibliometric analyses:

- Consulting a number of other handbooks and encyclopedias and making informal inquires of as many colleagues as feasible.
- Asking all section editors to name and rank the five or ten most important names in the history of their disciplines or research traditions. Subsequently the biography section editor discussed these names, along with other possibilities, with all the other section editors.
- Submitting the consolidated list of 150 names arising from these processes to 24 additional expert consultants for review.
- Running citation checks in publications between 1973 and 1996 on all the tentatively selected and some nonselected biographees. A total of 350 individuals were considered in this citation analysis. In addition, the check attempted to determine whether there were high-citation individuals not included in the original pool of candidates.

The authors of biographic entries were given the following guidelines: to include: "(a) the briefest sketch of the major dates and events in the life of the biographee; (b) the major contours of the substantive contribution to knowledge of each biographee, including the intellectual contexts within which he or she worked; (c) most important, to assess the importance and relevance of the biographee's work for the contemporary social and behavioral sciences."

Table 1 (prepared by Mayer) offers an alphabetic listing of those 147 who were ultimately included as well as the disciplines that, according to the section editors' and additional reviewers' judgments, were influenced by each biographee. We call attention to the absence of many figures in the history of philosophy who might legitimately have a claim to be considered as precursors to the social and behavioral sciences. We leaned toward including those philosophers—e.g., Hume, Kant, and Rousseau—whose work coincided with the eighteenth-century beginnings of these sciences. We did make a few exceptions to this rule—Aristotle,

**Table 1.** *Biographees*

| Name | | Primary Disciplines (Nominations) | Life Dates |
|---|---|---|---|
| Adorno | Theodor W. | Sociology | 1903–1969 |
| Allport | Gordon | Psychology/Politics | 1897–1967 |
| Arendt | Hannah | Philosophy | 1906–1975 |
| Aristotle | | Philosophy | 384–322BC |
| Aron | Raymond | Political Science; International Relations | 1905–1983 |
| Beauvoir | Simone de | Gender Studies | 1908–1986 |
| Benedict | Ruth | Anthropology | 1887–1948 |
| Bentham | Jeremy | Law; Philosophy | 1748–1832 |
| Bernard | Jessie | Gender Studies | 1903–1996 |
| Bernoulli | Jacob | Statistics | 1654–1705 |
| Binet | Alfred | Psychology | 1857–1911 |
| Bleuler | Eugen | Psychiatry | 1857–1939 |
| Bloch | Marc | History; Philosophy | 1886–1944 |
| Bloomfield | Leonard | Linguistics | 1887–1949 |
| Boas | Franz | Anthropology | 1858–1942 |
| Boserup | Esther | Gender Studies | 1910–1999 |
| Bowlby | John | Psychology | 1907–1990 |
| Broadbent | Donald Eric | Psychology | 1926–1993 |
| Burckhardt | Jacob | History | 1818–1897 |
| Campbell | Donald Thomas | Psychology | 1916–1996 |
| Cattell | Raymond Bernard | Psychology | 1905–1998 |
| Coleman | James | Sociology | 1926–1995 |
| Comte | Auguste | Sociology | 1798–1857 |
| Darwin | Charles | Genetics; Geography; Psychology | 1809–1882 |
| DeFinetti | Bruno | Statistics | 1906–1985 |
| Deutsch | Karl | Political Science | 1912–1992 |
| Dewey | John | Communication Media; Education; Philosophy | 1859–1952 |
| DuBois | W.E.B. | Anthropology | 1868–1963 |
| Dubos | René | Epidemiology | 1901–1982 |
| Durkheim | Emile | Sociology; Law; Anthropology | 1858–1917 |
| Edgeworth | Francis Ysidro | Economics; Statistics | 1845–1926 |
| Eliade | Mircea | Religion | 1907–1986 |
| Elias | Norbert | Communication/Media; Sociology | 1897–1990 |
| Erikson | Erik Homburger | Psychology | 1902–1994 |
| Evans-Pritchard | Edward E. | Anthropology | 1902–1973 |
| Fisher | Irving | Economics | 1867–1947 |
| Fisher | Ronald A. | Statistics | 1890–1962 |
| Foucault | Michel | Philosophy | 1926–1984 |
| Freud | Sigmund | Psychology | 1856–1939 |
| Galton | Francis | Behavioral Genetics; Psychology; Statistics | 1822–1911 |
| Gauss | Carl Friedrich | Statistics | 1777–1855 |
| Gellner | Ernest | Anthropology; Political Science | 1925–1995 |
| Goffman | Erving | Communication/Media; Sociology | 1922–1982 |
| Gramsci | Antonio | Political Science | 1891–1937 |
| Halevy | Elie | History | 1870–1937 |
| Hall | Granville Stanley | Psychology; Education | 1844–1924 |
| Harlow | Harry Frederick | Beh. Neuroscience; Psychology | 1905–1981 |
| Hart | H.L. | Law | 1907–1992 |
| Hayek | Friedrich A. von | Economics | 1899–1996 |
| Hebb | Donald | Cognitive Neuroscience | 1904–1985 |
| Hegel | G.W.F. | Philosophy | 1770–1831 |
| Heider | Fritz | Psychology | 1896–1988 |
| Helmholtz | Hermann von | Psychology | 1821–1894 |
| Hempel | Carl Gustav | Philosophy | 1905–1997 |
| Henry | Louis | Demography | 1911–1991 |
| Hintze | Otto | History | 1861–1940 |
| Hobbes | Thomas | Philosophy | 1588–1679 |
| Hotelling | Harold | Statistics | 1895–1973 |
| Humboldt | Wilhelm von | Linguistics/Philosophy; Education | 1767–1835 |
| Hume | David | Philosophy | 1711–1776 |
| Hurst | James Willard | Law/History | 1910–1997 |
| Husserl | Edmund | Sociology | 1859–1938 |

**Table 1.** (*cont.*)

| Name | | Primary Disciplines (Nominations) | Life Dates |
|---|---|---|---|
| Jackson | John Hughlings | Behavioral Neuroscience | 1835–1911 |
| Jakobson | Roman | Linguistics | 1896–1982 |
| James | William | Psychology; Philosophy | 1842–1910 |
| Janet | Pierre | Psychology; Psychiatry | 1859–1947 |
| Jeffreys | Harald | Statistics | 1891–1989 |
| Jung | Carl Gustav | Psychology | 1875–1961 |
| Kant | Immanuel | Philosophy | 1724–1804 |
| Key | Valdimir Orlando | Political Science | 1908–1963 |
| Keynes | John Maynard | Economics | 1883–1946 |
| Kimura | Motoo | Behavioral Genetics | 1924–1994 |
| Klein | Melanie | Gender Studies | 1882–1960 |
| Kohlberg | Lawrence | Psychology | 1927–1987 |
| Köhler | Wolfgang | Psychology | 1887–1967 |
| Kraepelin | Emil | Psychiatry | 1856–1926 |
| Kuhn | Thomas | Science and Technology | 1812–1881 |
| Laplace | Pierre Simon | Statistics | 1749–1827 |
| Lashley | Karl Spencer | Beh. Neuroscience | 1890–1958 |
| Lazarsfeld | Paul | Sociology; Communication/Media | 1901–1976 |
| Lewin | Kurt | Psychology | 1890–1947 |
| Llewellyn | Karl N. | Law | 1893–1962 |
| Locke | John | Philosophy | 1632–1704 |
| Lorenz | Konrad | Beh. Neuroscience; Psychology | 1903–1989 |
| Lotka | Alfred | Demography | 1880–1949 |
| Luhmann | Niklas | Sociology | 1927–1998 |
| Luria | Aleksandr Romanovich | Cognitive Neuroscience; Psychology | 1902–1977 |
| Macchiavelli | Niccolo | Political Science | 1469–1527 |
| Malinowski | Bronislaw | Anthropology | 1884–1942 |
| Malthus | Thomas | Geography; Demography | 1766–1834 |
| Mannheim | Karl | Science and Technology; Sociology | 1893–1947 |
| Marr | David | Cognitive Neuroscience | 1945–1980 |
| Marshall | Alfred | Economics | 1842–1924 |
| Marshall | Thomas Humphrey | Sociology | 1893–1981 |
| Marx | Karl | Economics; Sociology; Anthropology | 1818–1883 |
| Mauss | Marcel | Anthropology; Sociology | 1872–1950 |
| Mead | Margaret | Anthropology/Gender | 1901–1978 |
| Mead | George Herbert | Sociology; Philosophy | 1863–1931 |
| Mill | John Stuart | Economics; Philosophy; Gender | 1806–1873 |
| Montesquieu | Charles | Philosophy | 1689–1755 |
| Muller | Hermann Joseph | Behavioral Genetics | 1890–1967 |
| Mumford | Lewis | Planning; Urban Studies | 1895–1990 |
| Myrdal | Gunnar | Comm/Media; Economics | 1898–1987 |
| Needham | Joseph | Science and Technology | 1900–1995 |
| Neumann | John von | Economics | 1903–1957 |
| Neyman | Jerzy | Statistics | 1894–1981 |
| Nietzsche | Friedrich | Philosophy | 1844–1900 |
| Notestein | Frank | Demography | 1902–1983 |
| Olson | Mancur | Economics | 1933–1998 |
| Pareto | Vilfredo | Sociology; Political Science; Economics | 1848–1923 |
| Parsons | Talcott | Sociology; Communication/Media; Anthropology | 1902–1979 |
| Pavlov | Ivan | Psychology | 1849–1936 |
| Pearson | Karl | Statistics | 1857–1936 |
| Pestalozzi | Johann Heinrich | Education | 1746–1827 |
| Piaget | Jean | Psychology; Anthropology | 1886–1980 |
| Polanyi | Karl | Sociology; Economics | 1886–1964 |
| Popper | Karl Raimund | Philosophy | 1902–1994 |
| Quetelet | Adolphe | Demography | 1796–1874 |
| Ranke | Leopold von | History | 1795–1886 |
| Ricardo | David | Economics | 1772–1823 |
| Robinson | Joan | Economics; Gender | 1903–1983 |
| Rogers | Carl Ransom | Psychology | 1902–1987 |
| Rokkan | Stein | Political Science; Sociology | 1921–1979 |
| Rousseau | Jean-Jacques | Education | 1712–1778 |

**Table 1.** (*cont.*)

| Name | | Primary Disciplines (Nominations) | Life Dates |
|---|---|---|---|
| Sapir | Edward | Linguistics; Anthropology | 1884–1939 |
| Sauer | Carl O. | Geography | 1889–1975 |
| Saussure | Ferdinand de | Linguistics; Anthropology | 1857–1913 |
| Savage | Leonard Jimmie | Psychology; Statistics | 1917–1971 |
| Schumpeter | Joseph | Economics; Political Science; Sociology | 1883–1950 |
| Schütz | Alfred | Science and Technology; Sociology | 1899–1959 |
| Sherrington | Charles Scott | Cognitive Neuroscience | 1857–1952 |
| Simmel | Georg | Sociology; Communication/Media | 1858–1918 |
| Skinner | Burrhus Frederic | Psychology | 1904–1990 |
| Smith | Adam | Economics | 1723–1790 |
| Spencer | Herbert | Sociology | 1820–1903 |
| Sperry | Roger Walcott | Beh. Neuroscience | 1913–1994 |
| Stevens | Stanley Smith | Psychology | 1906–1973 |
| Stigler | George | Economics | 1911–1991 |
| Thorndike | Edward Lee | Education; Psychology | 1874–1949 |
| Tocqueville | Alexis de | Sociology; History; Political Science | 1805–1859 |
| Tversky | Amos | Psychology | 1937–1996 |
| Vygotskij | Lev Semenovic | Psychology | 1896–1934 |
| Watson | John Broadus | Psychology | 1878–1958 |
| Weber | Max | Sociology; Law; Anthropology; Political Science | 1864–1920 |
| Wittgenstein | Ludwig von | Philosophy | 1889–1951 |
| Wright | Sewall | Behavioral Genetics | 1889–1988 |
| Wundt | Wilhelm von | Psychology | 1832–1920 |

***Borderline Cases Not Included Among the Biographees***

| Name | | Primary Disciplines (Nominations) | Life Dates |
|---|---|---|---|
| Barnard | Chester | Organizational Science | 1886–1961 |
| Beach | Frank Ambrose | Behavioral Science; Psychology | 1911–1988 |
| Bentley | Arthur F. | Philosophy | 1870–1957 |
| Berlin | Isaiah | Political Science | 1909–1997 |
| Clausewitz | Carl von | Political Science | 1780–1831 |
| Davis | Kingsley | Demography | 1908–1997 |
| Dobzhansky | Theodosius | Behavioral Genetics | 1900–1975 |
| Eysenck | Hans | Psychology | 1916 –1997 |
| Frazer | James | Anthropology | 1854–1941 |
| Grimm | Jacob | Linguistics | 1785–1863 |
| Heidegger | Martin | Philosophy | 1889–1976 |
| Key | Ellen | Education | 1849–1926 |
| Lasswell | Harold Dwight | Political Science | 1902–1978 |
| Meillet | Antoine | Linguistics | 1866–1936 |
| Merleau–Ponty | Maurice | Philosophy | 1908–1961 |
| Michels | Robert | Political Science | 1876–1936 |
| Mills | Charles Wright | Sociology | 1916–1962 |
| Mosca | Gaetano | Political Science | 1858–1941 |
| Ramón y Cajal | Santiago | Cognitive Neuroscience | 1852–1934 |
| Savigny | Friedrich Carl von | Law | 1779–1861 |
| Shils | Edward | Sociology | 1910–1995 |
| Sorokin | Pitrim Aleksandrovich | Sociology | 1889–1968 |
| Stern | William | Psychology | 1871–1938 |
| Tinbergen | Nikolaas | Ethology; Behavioral Science | 1907–1988 |
| Veblen | Thorsten | Economics | 1857–1929 |
| Walras | Leon | Economics | 1834–1910 |
| Wechsler | David | Psychology | 1896–1981 |
| Yule | George | Statistics | 1871–1951 |

Macchiavelli, Bernoulli, Hobbes, Locke, Montesquieu—because of their powerful and enduring influence.

One person who is missing from Table 1 (because of author failure) is the French historian Fernand Braudel. In addition, we asked Mayer to include "near misses" in the table—the people who, under the procedures chosen, came closest to making the final list. Many of these are worthy, but could not be included. Some of these names may be included in subsequent on-line releases of the entire encyclopedia. We acknowledge the risk of peer bias and arbitrariness of judgment, but we can assure the reader that our editorial efforts were sincere and based on a high threshold for inclusion and extensive peer judgment.

We faced new decisions about biographees right up to the deadline for inclusion of entries into the encyclopedia (March 1, 2001). Two men died shortly before that date: the philosopher Willard van Orman Quine and the economist-psychologist Herbert Simon (who was able to prepare two entries for the encyclopedia before his death). Several section editors—and we ourselves—believed that they merited inclusion. However, considering the impending deadline, we concluded with regret that it was not possible to obtain the kind of biographies that Quine and Simon deserved. In our view, then, Braudel, Quine, and Simon should be on the list of biographees, but, for the reasons stated, are not.

*Disciplines or Other Ways to Organize?* In the end, of course, the encyclopedia was to be organized alphabetically. From which sources of knowledge would these entries spring? The first great European encyclopedias proceeded from a classification of the structure of knowledge based on *a priori* taxonomy, as developed for instance by Francis Bacon or Matthias Martini.

We judged the modern social and behavioral sciences to be less tied to an *a priori* conceptual order. The evolution of communities of science responded also to other questions, interests in particular problems, social relevance, as well as the priorities of funders of scientific research (see entries: *National Traditions in the Social Sciences*; *Science Funding*, *Asia*; *Science Funding*: *Europe*; *Science Funding*: *United States*; and several regional entries on *Infrastructure, Social/Behavioral Research*). As many entries in this encyclopedia demonstrate, the history of disciplines, research traditions, and learned societies is a dynamic, evolving, and multi-sided process (e.g., see entries *Paradigms in the Social Sciences*; *Disciplines*, *History of*, *in the Social Sciences*; *Intellectual Transfer in the Social Sciences*; *Universities*, *in the History of the Social Sciences*; *Anthropology*, *History of*; *Demography*, *History of*; *Developmental Sciences*, *History of*; *Economics*, *History of*; *Psychiatry*, *History of*; *Psychology*, *Overview*; *Sociology*, *History of*). Although we believed from the beginning that we needed a more or less systematic selection and classification of the behavioral and social sciences under which to select section editors and organize entries, we also realized that the actual practice of social and behavioral science demanded that we employ other criteria as well. To recognize this general point, however, did not carry us very far toward devising specific classificatory strategies.

One model was available: the 1968 *International Encyclopedia of the Social Sciences*. Its intellectual architecture was based mainly on disciplines, with some accommodation to other areas that were salient at that time. There were seven associate editors, one each for political science, anthropology, statistics, psychology, economics, sociology, and social thought, along with five special editors for biographies, applied psychology, economic development, experimental psychology, and econometrics. Inspection of that list, however, immediately revealed its inadequacy for a contemporary encyclopedic effort, given the vast array of new specialties within disciplines, the hybridization of knowledge, the permeability of disciplinary boundaries, and the mountain of interdisciplinary work in the last third of the twentieth century (Centre for Educational Research and Innovation 1972, Dogan and Pahre 1990, Klein 1990, Levine 1994).

The principal question was: to what degree should we rely on disciplines as bases for organizing entries? We knew that a strong case could be made for the disciplinary principle and an equally strong case could be made against it. The disciplines remain the primary basis for organizing departments and faculties in universities, as well as membership in noted academies. Disciplines have displayed remarkable institutional staying power. Future professionals receive their training in disciplinary settings and call themselves by disciplinary names. They find employment in discipline-based departments and faculties, and if they have not been certified in discipline-based training programs, they are often not employable. Together the training and employment systems form discrete labor markets, more or less sealed off from one another. The disciplinary principle is also mirrored in the organization of

professional associations, in their learned journals, and in publishers' academic lists. Governmental and foundation donors organize their giving in part under discipline-named programs and program officers. Honorary and fellowship societies also subdivide their activities along disciplinary lines. In a word, the disciplines persist as the life-blood of many vested interests in the social and behavioral sciences.

At the same time, much important work done in the social and behavioral sciences cannot be subsumed conveniently under disciplinary headings. Many intellectual, social, and personal forces draw scientists outside their disciplinary boundaries. A decade ago Smelser co-chaired a national committee on basic research in these sciences for the National Research Council. Its charge was to identify leading edges of research in the relevant sciences for the coming decade. After spirited debate, that committee decided *not* to use the disciplines as organizing principles, but, rather, to shape its report around some 30 topical areas of active research and significant promise (for example, memory, crime and violence, markets, modernization), most of which were interdisciplinary (Gerstein et al. 1988).

Given these complexities and uncertainties, it soon became apparent that we had to carve some creative middle position between the two alternatives. We wanted to reflect the organizing conceptual bases of the social and behavioral sciences, but we wanted to be sensitive to practices of sciences that are guided by topical, nondisciplinary, cross-disciplinary, transdisciplinary, and multidisciplinary marriages. This dual perspective on the organization of the encyclopedia developed as we progressed, and we now present an analytic recapitulation of how we arrived at the 39 sections that we used to recruit section editors and develop plans for entries.

The final result is presented in Table 2, which lists both the section titles and their editors, who in consultation with us were primarily responsible for identifying the entries specific to their sections. The table also gives the approximate number of entries allocated to each section—approximate because many entries had multiple allocations. Table 2 is not the table of contents of this encyclopedia, which is alphabetical, but the conceptual structure from which the vast majority of entries were derived.

We made some progress on conceptual organization at the first advisory meeting in 1996. We decided that some sections of the encyclopedia should be organized around disciplines (though we stopped short of identifying a definitive list), but there should be a supplementary list of sections as well. There should be, we decided, a number of "Social Science and . . ." sections, with the "ands" being areas such as law, education, health, communication, and public policy. This "and" principle took into account the fact that single disciplines do not encompass these areas, but all of them contain a great deal of social and behavioral science analysis. It was our way of recognizing the incompleteness and imperfections of the disciplines as comprehensive bases for organizing entries.

This first approximation created two further questions that were to preoccupy us. Which disciplines to include? What should be the bases *other* than disciplines for representing social and behavioral science work?

As for the disciplines, we had no problems about including anthropology, economics, political science, psychology, and sociology—recognized widely as "mainstream." But this set did not seem enough. For one thing, psychology presented an asymmetrical case—much larger by all measures than the others. In the end we subdivided psychology into three: Clinical and Applied Psychology; Cognitive Psychology and Cognitive Science; and Developmental, Social, Personality, and Motivational Psychology. This division represents areas of research acknowledged by most psychologists. However, other fields, such as Cognitive and Behavioral Neuroscience, have a strong affiliation with the discipline of psychology as well.

We then asked what other areas to include, either as additional disciplines or under some other heading. At this point we entered an arena of uncertainty, because some areas we wanted to include are not usually labeled as social or behavioral sciences, and many of them include other kinds of research. In the end we decided to err on the side of inclusiveness in considering disciplines. If a strong and reasonable (even if an incomplete) case could be made for considering an area to be a social or behavioral science discipline, we included it. (We were also aware that, from a political point of view, many scientists and scholars prefer their areas of work to be labeled as a discipline rather than something else.)

With this rationale in mind, we listed eight additional disciplines on the basis of their conceptual affinity to the social and behavioral sciences and the amount of social and behavioral science research carried on in them. Here, too, we acknowledge that our decisions reflect some arbitrariness, and that other scholars would create overlapping but different lists.

**Table 2.** *Sections, Section Editors, and Number of Articles (Original Targets in Parentheses)*

| Overarching topics | Disciplines | Intersecting fields | Applications |
|---|---|---|---|
| **Institutions and Infrastructure**<br>30 (36)<br>D. L. Featherman, USA | **Anthropology**<br>178 (195)<br>U. Hannerz, Sweden | **Integrative Concepts and Issues**<br>34 (35)<br>R. Scott & R. M. Lerner, USA | **Organizational and Management Studies**<br>78 (88)<br>A. Martinelli, Italy |
| **History of the Social and Behavioral Sciences**<br>80 (92)<br>P. Wagner, Italy | **Archaeology**<br>44 (51)<br>M. Conkey & P. Kirch, USA | **Evolutionary Sciences**<br>48 (67)<br>W. Durham & M. W. Feldman, USA | **Media Studies and Commercial Applications**<br>84 (86)<br>M. Schudson, USA |
| **Ethics of Research and Applications**<br>39 (45)<br>R. McC. Adams, USA, & J. Mittelstrass, Germany | **Demography**<br>123 (129)<br>J. Hoem, Germany | **Genetics, Behavior, and Society**<br>37 (57)<br>M. W. Feldman, USA, & R. Wehner, Switzerland | **Urban Studies and Planning**<br>49 (80)<br>E. Birch, USA |
| **Biographies**<br>147 (150)<br>K. U. Mayer, Germany | **Economics**<br>70 (95)<br>O. Ashenfelter, USA | **Behavioral and Cognitive Neuroscience**<br>190 (219)<br>R. F. Thompson & J. L. McClelland, USA | **Public Policy**<br>46 (91)<br>K. Prewitt & I. Katznelson, USA |
| **Statistics**<br>134 (134)<br>S. Fienberg & J. B. Kadane, USA | **Education**<br>127 (134)<br>F. E. Weinert, Germany | **Psychiatry**<br>73 (80)<br>M. Sabshin, USA, & F. Holsboer, Germany | **Modern Cultural Concerns (Essays)**<br>45 (54)<br>R. A. Shweder, USA |
| **Mathematics and Computer Sciences**<br>120 (139)<br>A. A. J. Marley, Canada | **Geography**<br>120 (130)<br>S. Hanson, USA | **Health**<br>140 (148)<br>R. Schwarzer, Germany, & J. House, USA | |
| **Logic of Inquiry and Research Design**<br>80 (87)<br>T. Cook & C. Ragin, USA | **History** 149 (156)<br>J. Kocka, Germany | **Gender Studies**<br>78 (81)<br>P. England, USA | |
| | **Law**<br>149 (165)<br>M. Galanter & L. Edelman, USA | **Religious Studies**<br>53 (54)<br>D. Martin, UK | |
| | **Linguistics**<br>99 (129)<br>B. Comrie, Germany | **Expressive Forms**<br>30 (33)<br>W. Griswold, USA | |
| | **Philosophy**<br>94 (102)<br>P. Pettit, Australia, & A. Honneth, Germany | **Environmental/ Ecological Sciences**<br>74 (75)<br>B. L. Turner II, USA | |
| | **Political Science**<br>174 (191)<br>N. W. Polsby, USA | **Science and Technology Studies**<br>66 (73)<br>S. Jasanoff, USA | |
| | **Clinical and Applied Psychology**<br>139 (150)<br>T. Wilson, USA | **Area and International Studies**<br>90 (137)<br>M. Byrne McDonnell & C. Calhoun, USA | |
| | **Cognitive Psychology and Cognitive Science**<br>161 (184)<br>W. Kintsch, USA | | |
| | **Developmental, Social, Personality, and Motivational Psychology**<br>173 (174)<br>N. Eisenberg, USA | | |
| | **Sociology**<br>197 (204)<br>R. Boudon, France | | |

These are the eight:

- Archaeology, most frequently considered a part of anthropology, but having an independent, coherent status
- Demography, most frequently organized as part of sociology, economics, and anthropology departments, but also possessing a kind of disciplinary integrity
- Education, a great deal of which involves social and behavioral scientific study
- Geography, research in a major part of which is of a social-science character
- History, sometimes classified in the humanities but as often in the social sciences, and clearly contributing centrally to knowledge in the social and behavioral sciences
- Law, whose subject-matter overlaps significantly with that of several of the social and behavioral sciences, with important though different linkages in Europe and North America
- Linguistics, spanning both the humanities and the social and behavioral sciences, but maintaining close links with the latter in cognitive science, psycholinguistics, sociolinguistics, and anthropology
- Philosophy, a subfield of which is the philosophy of the social sciences and whose work in the philosophy of mind, logic, metaphysics, epistemology, and ethics also pervades the social and behavioral sciences.

Even more difficult issues arose in connection with what should be in the "social/behavioral science and . . ." category. It became clear that not everything could be subsumed under the "and" rubric, because relations between the social and behavioral science disciplines and "other" areas are very diverse. After consultation with advisors and conversations between ourselves, we worked out the following ways to capture the complexity of work at the edges of the social and behavioral sciences.

Some subjects are relevant to all the social and behavioral sciences. We chose the term "overarching topics" to describe these subjects and identified four headings:

- Institutions and Infrastructure of the Social and Behavioral Sciences: universities, research academies, government structures, funding agencies, databases, etc.
- History of the Social and Behavioral Sciences
- Ethics of Research and Applications
- Biographies.

Various methodologies, methods, and research techniques also arch over many of the social and behavioral sciences. We chose three categories to capture them:

- Statistics, which infuses most of the social and behavioral sciences
- Mathematics and Computer Science, which does the same, but more selectively
- Logic of Inquiry and Research Design, including various nonstatistical methods of analysis (for example, comparative analysis, experimental methods, ethnography) and the whole range of methodological issues associated with the design, execution, and assessment of empirical research.

A third category evokes areas of research in which some work is in the social and behavioral sciences, but which also include other kinds of work. We called these "intersecting fields." We considered many candidates for this list, and after much consultation and deliberation we chose the following as the most apt:

- Evolutionary Sciences, which encompasses inquiry in psychology, anthropology, and sociology, as well as the geological and biological sciences
- Genetics, Behavior, and Society, a category that also bridges the biological and the behavioral and social sciences
- Behavioral and Cognitive Neuroscience, for which the same can be said, although it has equally strong ties to Psychology
- Psychiatry, which is partly biological and partly behavioral and social in orientation, but which also includes an applied therapeutic aspect
- Health, which includes mainly the medical and public health sciences, but in which much behavioral and social science work deals with conditions contributing to health and illness, health delivery systems, and public policy
- Gender Studies, which spread across most of the humanities and the social and behavioral sciences, as well as the biological sciences

- Religious Studies, which have theological and philosophical aspects but also include much social and behavioral science research
- Expressive Forms, many aspects of which are covered by research in the humanities, but also include the anthropology, psychology, and sociology of art, literature, and other cultural productions
- Environmental/Ecological Sciences, with links between the social and behavioral sciences and to the physical and biological sciences and policy studies
- Science and Technology Studies, which encompass the physical sciences, engineering, history, and the social and behavioral sciences
- Area and International Studies, some aspects of which are subsumed by the behavioral and social sciences, but which have an independent status as well.

We acknowledge some arbitrariness in calling one area a "discipline" and another an "intersecting field." Geography, for example, might qualify for either list, as might education, linguistics, and the behavioral and cognitive neurosciences. In the end we had to settle for ambiguity, because there is no unequivocally correct solution. Our ultimate justification was that our judgments were not unreasonable and that what mattered most was to guarantee coverage of all the relevant areas.

To complete the process of compilation, we identified several fields that also intersect with the social and behavioral sciences but are more aptly described as "applications" of knowledge to discrete problems:

- Organizational and Management Studies
- Media Studies and Commercial Applications
- Urban Studies and Planning
- Public Policy.

These 37 categories—representing overarching issues, methods, disciplines, intersecting fields, and applications—constitute our best effort to maximize coverage and to provide a basis for selecting section editors. Later, we decided to add two more sections to make the encyclopedia more timely and complete:

- Modern Cultural Concerns, intended to cover topics of contemporary preoccupation and debate—for example, affirmative action, transnationality, and multiculturalism; on some of these we envisioned two separate entries, one pro and one con; we believed such a section would capture some of the major concerns of civilization at the end of the second millennium.
- Integrative Issues and Concepts, meant to encompass topics, questions and gaps that remained after we divided up the social and behavioral sciences world the way we did.

We note that the number of categories (39) generated for the new encyclopedia is much larger than the number (12) for the 1968 edition. It is also nearly twice the number envisioned by the publishers and the scholars present at the first advisory meeting in 1995. We are unashamed of this expansion, acknowledging as it does the additional input provided by our extensive consultations as well as the accumulation, spread, and increased diversification of knowledge in the past 35 years.

Despite our efforts to maximize coverage, additional topics remained for which an argument for a distinct section could be made, but which we did not include as such. One example is "race and ethnic studies," which some might say is as important as "gender studies." Another suggestion is "time," a plausible way of grouping some research, but one we believe is not sufficiently precise analytically. Other categories having similar claims are "human development" and "gerontology" or "information science and "information technology." In the end we had to set an upper limit on number of sections, and in the case of omissions we made special efforts to assure adequate coverage within the designated categories.

*Assembling Section Editors and Advisors*. Even before Baltes agreed to be co-editor-in-chief, it had been arranged that he would spend the academic year 1997–98 as a residential Fellow of the Center for Advanced Study in the Behavioral Sciences. This coincidence proved to be a blessing. It was essential that we interact continuously during that year, because it was the period for finally consolidating the intellectual structure of the encyclopedia and designating and recruiting academic leaders.

We made each of the 39 categories a "section" of the encyclopedia. In the fall and winter of

1997 we identified, sought, persuaded, and recruited one person to be responsible for entries in each section (we included co-editors when a section editor requested one or when a section needed broader topical or international coverage). Knowing that these appointments were crucial to the coverage and quality of the encyclopedia, we were thorough in our search, exploiting our networks of advice in the social and behavioral sciences, and creating such networks when we did not already have them. A few additional section co-editors were added later, as evolving needs seemed to dictate.

During the same period we recruited 86 scholars to constitute an International Advisory Board for the encyclopedia. We wanted this group to be composed of the most distinguished senior social and behavioral scientists around the world. To identify them we sought advice through the same networks on which we relied to seek out section editors, and we also sought the opinions of section editors themselves as we appointed them. We called on individual members of the advisory board from time to time, and asked all of them to become involved in reviewing and making suggestions for all the entry lists. On a few occasions the advisors offered unsolicited advice, to which we also listened and responded with care.

*Weighting the Sections and Entries*. We realized that not every section merited the same number of entries. We devised a scheme to assign 200 entries to most of the disciplines and some of the intersecting fields, 150 or 100 to some other sections, and 50 entries to some of the smaller areas such as Religious Studies and Expressive Forms. In doing this we were simultaneously making qualitative judgments about the categories—once again with a degree of arbitrariness. We never thought that these numbers were fixed, they were meant to be approximations.

As a second weighting strategy we permitted section editors to vary the length of their entries between a minimum of 2,000 and a maximum of 5,000 words. We left these decisions mainly to section editors on grounds that they were the best judges of topical priority in their own areas, though we consulted with them from time to time. This flexibility produced some changes in the targeted number of entries per section, depending on section editors' different patterns of word-allocation. Also, inability to locate authors for some topics and author failures meant that the originally targeted numbers were seldom reached.

We employed one final method of weighting. We asked each section editor to classify every one of his or her entries as "core" or "noncore." The former were entries that, in the section editors' estimation, would create a recognizable gap in coverage if unwritten. The second were entries deemed important enough to merit original inclusion in the entry list, but less central to the discipline or field than the core items. As time went on, and especially when we reached the final stages of commissioning, we pressed section editors to give highest priority to signing and securing core entries.

*Overlap and Redundancy*. In pursuing all these classificatory and weighting strategies, our overriding aim was to capture the "state of the art" in the social and behavioral sciences with all their expanse and complexity. In the end—after several years of pondering, consulting, weighing, rejecting, including, reformulating, and coming to final decisions—we emerged reasonably satisfied that we had woven a seine that would catch almost all the fish swimming in the waters of the social and behavioral sciences.

In creating this structure, however, we discovered that other problems emerged as a result of our efforts to classify and select. Because our system captured so much of social and behavioral science work, we found we had captured too much. We had to contend continuously with overlap among the 39 sections and among the thousands of entries that filled the sections' lists.

Overlap is a problem because the history of development in the social and behavioral science disciplines and elsewhere has been uncontrolled. Any scientist in any discipline can, by choice, take up a topic or research theme, and many scholars from different disciplines take up the same topics or themes. This freedom generates both hybridization and overlapping of knowledge. Gender studies is a case in point. It infuses at least a dozen separate disciplines and other lines of inquiry. Race and ethnic relations is another illustration, as are legal studies, medical studies, urban studies, and gerontology.

We therefore faced many problems of potential overlap in the encyclopedia. To stay with the gender studies illustration, if we had asked all section editors simply to cover their fields, we would have found some identical and even more overlapping entries on gender in the sections on evolutionary science, genetics, anthropology, economics, geography, history, law, political

science, psychology, sociology, and religious studies, to say nothing of the section on gender studies itself.

In the course of our work the problem of overlap became as nettlesome as the problem of comprehensiveness of coverage. We attacked it in a number of ways:

(a) At the "master meeting" of virtually all the section editors April 2–4, 1998, at the Center for Advanced Study in the Behavioral Sciences, we reviewed all aspects of the architecture of the encyclopedia in collective meetings. In addition, much time and energy was spent in meetings of "clusters" of section editors in related fields and in one-on-one meetings among the section editors. The smaller meetings were devoted almost entirely to identifying potentially overlapping entries among different section editors as a way of minimizing redundancy. The scene was somewhat frantic, resembling a stock exchange, with dozens of "you-take-this-I'll-take-that" transactions transpiring simultaneously. Almost all section editors approached the process in a remarkably nonterritorial way, being as willing to give up entries as to take responsibility for them. Their cooperative spirit was facilitated by the knowledge that, in the end, the boundaries among sections would disappear into the alphabetical listing, and that readers would have no basis of knowing, except in a general way, which section editor was responsible for a given entry. The main concerns in these horse-trading meetings were to assure coverage and minimize overlap, but also to increase quality control by finding the best match between the interests and abilities of section editors and entries.

(b) We sent out lists of entries for each section to every entry-author, requesting them all to be aware of overlap and, if possible, to contact other authors and coordinate their entries.

(c) We asked section editors to be on the lookout for overlap within sections in assigning entries, in reading abstracts of entries (submitted by authors within a month after contract-signing), and in reviewing and approving final manuscripts submitted by their authors.

(d) As co-editors-in-chief we gave an overview reading to abstracts and final manuscripts. This was a way of reducing overlap among sections, which individual section editors, with access to only their own section entries, could not identify adequately.

(e) The editorial staff of Elsevier, which was responsible for the copy-editing phase for all manuscripts, was asked to be sensitive to repetition and overlapping during the copy-editing process.

(f) As co-editors-in-chief, we joined the Elsevier editorial staff in reviewing the titles of all entries in order to minimize overlap and ensure that the titling would maximize accessibility and facilitate searching by readers of the encyclopedia.

Minimizing overlap of content, however, was not enough. We also strove to guide readers to related entries by an elaborate system of cross-referencing entries to one another. We asked authors and section editors to enter their own suggestions for cross-referencing within sections at the entry-approval and proofreading stages.

As editors-in-chief we are in charge of supplying cross-references *across* sections.

Finally, it should be added that an inevitable residue of overlapping remains, despite all our efforts.

*Author Recruitment*. We kept a running account of the acceptance rate of authors asked to contribute. Our statistics on this topic are not perfect, because they are incomplete and because there were occasional changes in topics that the invited authors covered after consulting with the editors.

Despite these shortcomings, we offer the following two approximate data. First, the percentage of acceptances in the initial round of invitations was slightly more than 60%, with substantial variation among sections. This rate persisted in the next round of invitations. Second, nearly 90% of the authors who agreed to contribute wrote acceptable entries in time to be included in the printed version of this work. This means that the encyclopedia covers all but about 10% of the entries that we originally envisioned.

*Quality Control*. We made scientific and scholarly quality our primary and overriding concern throughout. There were two levels of quality control, the first resting with the section editors, the second with the editors-in-chief.

The main mechanisms for assuring quality, of course, were to select the best section editors we could, and to have the section editors create the best entry lists and recruit the best authors they could. To facilitate the latter, we reviewed the entry lists and authors ourselves and circulated the lists among selected members of our International Advisory Board and independent experts, asking for emendations.

Beyond these general guarantees, we asked section editors to review both abstracts and entry manuscripts, and to return them to authors for revisions when necessary. All manuscripts approved by section editors were then sent to the editors-in-chief for final review and approval.

We mention another mechanism of quality control if for no other reason than that it commanded so much of our attention. Early in the planning and recruitment process the editors-in-chief established a "one-author-per-entry" policy. Our reasoning was simple: we wanted each author to assume responsibility for his or her entry, and we wanted to prevent authors from agreeing to contribute but then assigning the work to an assistant and signing the entry as co-author. We may have been too cynical, but we were familiar enough with the practice to want to discourage it. As the signings began, however, we found that many potential authors wanted co-authors, some so strongly that they indicated they would not contribute if they could not have them. Their demands raised yet another issue of quality control—losing authors we wanted—and threatened to overwhelm us with requests for exceptions. In the end we eased the policy somewhat, permitting co-authors if both were recognized scholars or had a history of collaborating with one another. This policy proved satisfactory, but we continued to receive queries from section editors on the issue of co-authorship. We granted occasional exceptions when we found that authors, through lack of understanding of the policy, had invited co-authors without prior permission.

The ultimate level of quality control rested with us, the editors-in-chief. We reviewed all entries after the section editors cleared them. Both of us took a careful look at every manuscript ourselves before finally approving it. We read most of them in full. In addition, we used a variety of expert colleagues as readers. Baltes, for instance, had seven colleagues representing neuropsychology, psychiatry, psychology, education, cognitive science, linguistics, and law, who as a group read about 1,300 manuscripts and offered valuable suggestions for improvement. Smelser asked for occasional advice from others, and also employed an editorial assistant to go over all manuscripts for general readability. Together we asked section editors and authors for revisions of about 10% of the entries. This number varied considerably by sections. Elsevier assumed responsiblity for translating some articles into English and for copy-editing all manuscripts before production.

In one final and important facet of quality control, we recruited Dr. med. Julia Delius as scientific editorial assistant in Baltes's office in Berlin. She monitored the entire editorial process and reviewed—especially for Baltes—the formal aspects of the submitted entries. As her experience developed, she became a vital person in transmitting readers' comments to section editors and authors, later also assisting with cross-referencing and proof-reading. Her service was exceptional.

*Representativeness of Authors*. What about authors and their origins? Along with comprehensiveness, quality, and orderliness, we aspired to international and gender representativeness of authors in developing the encyclopedia. Of the four criteria, the last proved the most elusive. We were aware that research in many of the social and behavioral sciences is concentrated in North America, and if North America is combined with Western Europe, the pattern is one of outright dominance. We did not want this dominance to overwhelm the encyclopedia. We wanted representation, however modest in some cases, from other regions of the world. We were also aware that biases along gender and age lines are likely to work their way into any encyclopedic effort, unless active steps are taken to counteract them.

From the beginning the editors-in-chief were especially concerned with representativeness with respect to nation/region and gender. We dealt with these issues in three ways:

- We made efforts to assure that European scholars and women were represented among the section editors. In selecting editors, however, we confess that we found it extremely difficult to locate satisfactory candidates in regions outside North America and Europe, largely because the social and behavioral sciences are less developed in these areas and because many scholars there are less acquainted with general developments in their fields.
- We made similar efforts to assure representativeness among authors. At a certain moment, just after the section editors had submitted their semi-final lists of entries, along with two alternative authors for each entry, we went over every entry list and communicated to all authors about the regional and gender balance of their lists. In some cases we suggested finding alternative authors, and in others we suggested reversing first and second choices to achieve better balance, if quality would not be sacrificed. This process was not restricted to the initial phase of author selection. We strove throughout the writing process to increase the number of non-North American authors. Whenever a new entry

was added or we noticed that an entry was not yet assigned to an author, we attempted to strengthen international as well as gender representation. These interventions produced significant results in the relevant proportions.

- In reviewing regional balance, we sometimes noticed cases of underrepresentation of certain regions and countries and waged periodic campaigns with section editors to intensify their searching. We supplemented their efforts with our own inquiries. For example, we wrote to a large number of presidents of Eastern European academies to enlist their support in identifying candidates for authorship.

In reporting these efforts we acknowledge that there is no fixed and correct formula for representativeness and that no matter what is done, more could always be done. Nevertheless, we want to report to readers what we undertook.

Table 3 provides a summary of first authors by country and gender. About 58% of the authors are from North America, 35% from Europe, and 7% from other countries. Authors from 51 countries are represented; of these, however, 15 provided only one author. As to gender composition, 21% of the authors are women. We will not comment on the numbers we achieved, though we know that others will. In sharing the statistics with some colleagues, we received both applause and criticism, depending on the perspectives and standards of those who read them. We daresay that this will be the case generally.

### Some Concluding Thoughts on Encyclopedias

As editors-in-chief thinking on this enormous enterprise at the moment of its birth, we offer of few reflections. We have invested both commitment and perspiration in its production, so we naturally hope that it will have as much impact and age as gracefully as its two forerunners,

**Table 3.** *Geographical Distribution of First Authors* (*Total 3842*)
Male: 3034 (79%), Female: 808 (21%)

| 10 Authors and More | | Less than 10 Authors | |
|---|---|---|---|
| USA | 2061 | South Africa | 9 |
| Germany | 431 | Hungary | 8 |
| United Kingdom | 424 | Russia | 6 |
| Canada | 132 | China | 5 |
| Australia | 120 | Poland | 5 |
| Netherlands | 109 | Czech Republic | 4 |
| France | 100 | Mexico | 4 |
| Sweden | 54 | Singapore | 3 |
| Italy | 52 | Taiwan | 3 |
| Switzerland | 45 | Turkey | 3 |
| Japan | 43 | Uruguay | 3 |
| Israel | 37 | Venezuela | 3 |
| Belgium | 24 | Greece | 2 |
| Norway | 20 | Malaysia | 2 |
| India | 18 | Bulgaria | 1 |
| New Zealand | 18 | Botswana | 1 |
| Brazil | 16 | Cameroon | 1 |
| Austria | 15 | Colombia | 1 |
| Ireland | 13 | Cyprus | 1 |
| Spain | 13 | Egypt | 1 |
| Finland | 12 | Iceland | 1 |
| Denmark | 10 | Indonesia | 1 |
| | | Ivory Coast | 1 |
| | | Jamaica | 1 |
| | | Kuwait | 1 |
| | | Mali | 1 |
| | | Morocco | 1 |
| | | Portugal | 1 |
| | | Slovenia | 1 |
| | | Yugoslavia | 1 |

*Note.* Countries reflect first authors' affiliations and not their nationalities.

published in 1931–35 and 1968. Both of these captured and reflected well the scientific accomplishments of their times, and many contributions to their pages endure to this day. We hope that the editors of the next encyclopedia—sometime into the twenty-first century—will be able to say the same of ours.

In saying this, however, we must call attention to two evident, changing—and historically unique—contexts in which these volumes appear. The first is the remarkable character of the encyclopedia "industry" at the present time. In recent decades the number of new encyclopedias coming on the market has been increasing at a galloping rate, one that, moreover, shows no signs of slowing. We have no way of making an accurate count, but we discovered that Amazon.com lists nearly 6,000 encyclopedias for purchase, and the number reaches almost 10,000 for Barnesandnoble.com. We can gaze into the future and imagine the appearance of an encyclopedia of encyclopedias!

In some respects this explosion reflects the reality of market opportunities for publishers. More important, however, it expresses the evident impulse to consolidate knowledge that is growing at increasing rates in magnitude, diversity, specialization, and fragmentation.

Despite this integrative thrust, most of the new encyclopedias are themselves quite specialized, covering only delineated subparts of disciplines and topical areas of inquiry. Elsevier Science itself, for instance, has published multivolume encyclopedias on clinical psychology (one subfield among many in psychology) and higher education (a specialty within the study of education). To underscore this point further, we report discovering such unexpected and unlikely titles as the *Encyclopedia of Canadian Music, Encyclopedia of Celts, Panic Encyclopedia,* and *Alien Encyclopedia*. Handbooks also show a tendency to cover more limited ranges of knowledge.

We believe that we have marched against these trends. These volumes represent our continuous effort to assemble the whole range of knowledge—vast and complex as it is—of the social and behavioral sciences in one place. We hope to raise the consciousness and expand the knowledge of our readers, and—more important—to encourage them to link their work productively with that of others as the research enterprise of our sciences moves into the future.

The second changing context has to do with the current state of scientific knowledge and information technology. We express the wish for durability, but at the same time we wonder whether modern encyclopedias will be able to endure on the shelves in unaltered form. The dynamics of knowledge in the social and behavioral sciences are now radically telescoped, and will become more so. Research in these sciences is exploding, as is the knowledge it yields. Moreover, we live in a world of interdisciplinarity in which different lines of work mate and breed incessantly. We note especially but not exclusively the ferment at the boundaries between the biological and the behavioral and social sciences.

The implication of this dynamism is that it becomes increasingly mandatory for encyclopedias to be more open to revision and enrichment. We therefore welcome the decision of the publisher to produce an Internet version of this encyclopedia. We do not suggest that technology is the primary reason for reducing the half-life of encyclopedia knowledge, but we do know that technology will permit the scientific community to improve the scope, depth, quality, and timeliness of that knowledge. It will do so by allowing us to complete entries that were envisioned but not received, to fill in the gaps that we and others will inevitably notice, and above all to keep abreast of new knowledge and new applications as they materialize. The surest sign of success of our work may lie in its capacity to adapt. If this encyclopedia can be at the center of this process, we would be delighted.

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