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ABSTRACT

The relationship between academic institutions and knowledge dissemination is discussed, with attention to new technologies, university presses, the role of scholarly journals, colleges as gatekeepers of knowledge, colleges as both producers and consumers of scholarly products, and an international network of knowledge distribution. New technologies cause economic and ethical problems but also provide immediate access to information. Fiscal problems for higher education in many countries have meant that budgets for dissemination and storage of knowledge, especially library funds and allocations for university presses, have been cut. University presses, particularly in the United States and Britain, are major publishers of scientific literature. Scholarly journals are typically edited in universities and frequently published on campus. Academic institutions are also the primary users of scholarly publications. Universities, through the system of evaluation of professional performance, act as indirect gatekeepers, deciding what kinds of knowledge will be rewarded. Universities in the large industrial nations are the major producers of scholarly knowledge, as well as the main distributors. Academic institutions in other countries, and particularly in the Third World, are, in the main, consumers of scholarly materials and research published elsewhere. (SW)

HIGHER EDUCATION AND THE DISTRIBUTION OF KNOWLEDGE: INTERNATIONAL PERSPECTIVES

Philip G. Altbach

Universities are among the world's most important producers of knowledge. They are also crucial links in the chain of knowledge distribution as well, yet few have analyzed the role of universities in the knowledge distribution enterprise. University presses, particularly in the United States and Britain, are major publishers of scientific literature. Scholarly journals are typically edited in universities and frequently published on campus. Academic institutions are also the primary users of scholarly publications of all kinds. Journals would not survive without the library market, and the products of the university presses are sold mainly to academic libraries. Individual scholars as well as libraries are consumers of the various newly established data-bases and bibliographical services.

The knowledge distribution system also has important international implications, as academic institutions in many countries are linked, frequently by their participation in an international system of knowledge distribution. Universities in the large industrial nations, and particularly in the United States, Britain, France and to a lesser extent West Germany and the Soviet Union, are the major producers of scholarly knowledge, as well as the main distributors. Academic institutions in other countries, and particularly in the Third World, are in the main consumers of scholarly materials and research produced elsewhere. Knowledge systems have centers and peripheries in the production and distribution of knowledge. The flow of knowledge is largely from the "centers" to the "peripheries."[1]

We are concerned here with describing and analyzing the role of higher education in the system of knowledge distribution worldwide.[2] It is not enough to produce knowledge through research and scholarship. There must also be the means to disseminate that knowledge so that users may have access to it. Universities must be aware of their key -- and very complex -- role in the dissemination process, and recognize their responsibilities in this area. The knowledge system is at present under considerable pressure.[3] The impact of the new technologies, especially of reprography in all of its forms and particularly the ubiquitous photocopying machines, cause economic and ethical problems as well as making immediate access to information easier in many fields. Data-bases have dramatically expanded the horizons of scholars. But at the same time, libraries have had to deal with these technological advances. The spiraling cost of scholarly books and journals have created problems for both the producers and the users. The proliferation of journals has meant that academic libraries now spend more money on serials than on books. The expansion of knowledge is a challenge to scholars in all fields and in all countries, but it is a particularly severe problem in the Third World, where access to an expanding knowledge basis is very difficult. Moreover, fiscal problems for higher education in many countries have meant that budgets for the dissemination and storage of knowledge -- especially library funds and allocations for university presses -- have been cut. We are, therefore, concerned here with a very complex set of relationships.

The role of higher education institutions in knowledge distribution is both formal and informal. Universities, through the system of

evaluation of professorial performance, act as indirect gatekeepers, deciding what kinds of knowledge will be rewarded. Libraries, through their decisions on acquisitions, also have a role in determining what kinds of knowledge are economically viable.[4] Academic institutions with university presses have formal means of publishing and distributing knowledge. Universities frequently publish journals, sponsored by departments, faculties or other academic agencies. These journals are key elements in the knowledge distribution system. In short, universities have a multiple role in shaping the nature and scope of knowledge distribution. Universities are the home of the many "invisible colleges" of scholars and researchers that are the core of any academic discipline.[5] These mechanisms are also important in determing what knowledge is produced and considered legitimate and what then is distributed.

This essay considers new technologies, traditional academic practices and norms, an international system, and the direct and indirect roles of academic institutions in one of the most important, yet very frequently ignored, functions of higher education. We are concerned here with both the institutional factors and also with the human dimensions of knowledge distribution and higher education.

The International Knowledge Network

Knowledge knows no borders. It is freely circulated internationally even when governments attempt to restrict its flow. The development of an international network of knowledge distribution is by no means a new phenomenon. Medieval European universities functioned in

Latin, the international scholarly lingua franca of the time, and knowledge, through manuscripts as well as scholars, circulated throughout the continent.[6] In East Asia, Chinese served as the major language of scholarship for many centuries, bringing religious, scientific and philosophical knowledge to Japan and Southeast Asia. Further, academic "centers" have always existed. Many of the American scholars who were responsible for the growth of the research university in the United States were trained in Germany, the academic center of the late 19th century.[7] A knowledge of German was necessary to keep abreast of scientific knowledge and the major German academic journals were the primary means of disseminating new research. Centers and peripheries existed in the Middle Ages and in the Nineteenth century.[8] It is possible for academic institutions within one country to move from a position of central prominence to one of lesser importance and back again. Oxford University was never far from the center of British society, but did not play a key scholarly role for a long period prior to the 19th century.[9]

In the contemporary world, a truly international knowledge network has emerged which, for the first time, covers most of the globe. Research done in the major academic centers has influence in other countries. Modern technology has permitted the global emergence of a knowledge network, and only political constraints interfere at times with this network.[10] The network has a number of important characteristics that have an impact on the distribution of knowledge. Further, inequality is a hallmark of international knowledge dissemination.

The emergence of English as the major language of science and scholarship in the post World War II period is one of the most important elements in the contemporary knowledge network. The bulk of the world's scholarly journals are published in English and the Anglo-American universities spend more than half of the world's total academic budgets for research and development. Twelve nations have English as their native language and another 33 countries use it as a major medium of communications.[11] Of course, French continues to play an important international role, and Russian, in Eastern Europe, is prominent. But knowledge dissemination, whether through journals and books or at international conferences, is increasingly communicated in English. This gives the countries that use English a considerable advantage. English is the Latin of the 20th century and is firmly entrenched as the major language of scholarship and research.

Because the major infrastructures of knowledge dissemination are located in the industrialized nations, this gives them a considerable advantage. The fact that the major publishers of books and journals, most of the editors, the major research laboratories and libraries and the very large majority of the key scientists are in a small number of industrialized nations means that these nations, and the universities in them, have a dominant role in the dissemination system. These same countries produce most of the world's research. This is a powerful combination of advantages. The journal editors, publishers and libraries of the 'North' dominate the system because of the weight of their resources. The universities and research institutions of the industrialized nations have, in a sense, a stranglehold over the

production of knowledge.

Technological developments tend to reinforce these inequalities by, in general, further centralizing the knowledge system. Data-bases, without exception, originate in the industrialized nations, use information from these nations, and are disseminated world-wide, often earning a profit for those who control the network. The ERIC system in the United States, using federal government funds, serves academic libraries and the research community. The Ohio Colleges Library Consortium (OCLC) bibliographic system is also university-based for the most part. These new tools for knowledge dissemination and retrieval are very important. Satellite communications networks, fibre-optic computer system, and the like all serve an increasingly international audience, but again are controlled from the centers and disseminated to the peripheries. Perhaps the only new technology which has lent itself to independent use is that of reprography -- the photocopying revolution. Here the technology is relatively widely diffused and has permitted non-producing countries to copy materials quickly, sometimes violating the international copyright regulations.[12]

Knowledge concerns technology, but it is also a matter of highly skilled people. Here again the metropolitan centers have a major advantage over the peripheries. Most of the world's prominent researchers are confined to a small number of premier universities in the industrialized nations. These are the scholars who produce the research, serve as evaluators for journals and publishers, and constitute the bulk of the invisible colleges of the disciplines. In many Third World nations, there are few skilled personnel to edit manuscripts, to coordinate the activities of publishing books and

journals or to develop and maintain academic libraries.

There is an increasing international flow of students, researchers and others involved in higher education. There are, for example, more than 335,000 foreign students studying in American colleges and universities. Most are from the Third World, and many will return to academic institutions and research laboratories in their home countries. They will imbibe the norms, values and orientations of American higher education during their stay, and they will become part of an international network that looks toward their American alma maters for cues.[13] Many thousands of other foreign students study in France (which has a higher proportion of its student population made up of foreigners than does the U.S.), Britain, West Germany, Czechoslovakia, the Soviet Union and other industrialized nations. The Fulbright Program, its West German counterpart, the DAAD, and a variety of other agencies send scholars around the world in unprecedented numbers. These individuals become part of the international knowledge network by imparting skills, working with colleagues overseas, and developing institutional and personal links.

The impact of research and publication reinforces the status quo. In a study of articles published in the sciences, a number of generalizations were found. In 1973, the industrialized nations accounted for 84% of the total scientific articles published. American authors alone accounted for 43% of the articles, with Western Europe in second place with 17%. The entire Third World accounted for only 5% of the total. As Eugene Garfield put it, "Western journals control the flow of international communication almost as much as Western news agencies 'monopolize' international news."[14]

Financial resources are, of course, a crucial part of the knowledge network. Money is needed to operate a publishing house or journal, to pay editors, and to underwrite research. The academic institutions themselves have to have adequate financing -- and just as important, to devote their resources to research and dissemination. Further, there need to be adequate markets for the products of knowledge -- and these exist largely in the industrialized nations. An edition of 1,000 copies of a scholarly book can, sometimes with difficulty, be sold in the United States, but not in many smaller nations. The larger industrialized nations have an adequate internal market for scholarly materials and they can build their exports on the basis of this domestic market. Other nations do not have this luxury. Knowledge dissemination, particularly at the esoteric levels of specialized research, is never profitable and frequently requires subsidy. In the United States, research grants often provide funds for dissemination of results which permit journals to levy "page charges" as a way of paying for publication costs. The university presses often are subsidized by their sponsoring academic institutions. Academic institutions in the wealthy industrialized nations can afford to provide well stocked academic libraries, to subscribe to the key journals worldwide, to ensure that information is readily available to researchers and students, and in general to maintain an adequate dissemination apparatus on campus. This is not necessarily the case in many smaller, poorer, and less well-endowed institutions and nations. Indeed, in many respects, the wealthier institutions and nations gain enhanced advantages as they are better able to keep up with the expanding knowledge base.

In the physical and biological sciences, where laboratories and increasingly expensive scientific equipment, are necessary for research, the stranglehold of the major industrialized nations is especially strong. The infrastructures of science in fields requiring such costly instruments, are possible only in wealthy nations with an emphasis on research and development. Since funds for scientific infrastructures come mainly from government sources, scientific research is often geared toward the research interests of governmental bodies and thus reflects, at least in part, specific policy orientations rather than the direct research interests of the scholarly community. In this respect, the governments of the major industrialized nations exercise an immense influence on the direction of research and scientific productivity.

Academic institutions are at the heart of the international knowledge network. They can be, in many ways, international institutions with students and staff from many countries. The libraries of such institutions are repositories of materials in many languages and from many countries. Some larger universities develop their own 'foreign relations,' with links to overseas institutions, spheres of influence and the like. Again, the major research-based universities of the industrialized nations tend to dominate these relationships, with Third World institutions acting as junior partners.

There are, of course, centers and peripheries among academic institutions within nations, and the relationships described here are by no means limited to the international sphere. Universities with fewer resources, smaller libraries, less adequate access to external funding and small laboratories are on the peripheries. Such institutions

generally do not house the major scholarly journals and they do not have access to the center of the academic marketplace. They frequently feel their peripheral status and attempt, usually with only mixed results, to move closer to the centers and hence to the sources of intellectual resources, power and prestige.

Universities as Publishers

Universities are publishers, and as such direct contributors to the knowledge dissemination system.[15] The most direct and obvious publishing activity of a university is that of the university press.[16] But academic staff may engage in publishing activities on their own. Universities frequently subsidize the publication of books by commercial publishers or other agencies. In short, the involvement of many large academic institutions in publishing is quite significant -- and in general unanalyzed or even unknown to the institutions.

Although the university presses are responsible for only somewhat more than 1% of the total income of American publishers and a somewhat higher proportion of the title output, the impact of the university presses on scholarly publishing is substantial.[17] For the scholar, the university presses are at the top of the prestige hierarchy. The university presses, because of their non-profit status and their traditional orientations, are able to publish scholarly monographs and research studies that would be difficult or impossible for private sector publishers to issue. University presses, like the academic institutions that sponsor them, are largely meritocratic agencies that make publishing decisions to some extent free of the commercial constraints of other publishers. The university presses see their roles

related to the advancement of knowledge and they frequently publish manuscripts which may not be viable in the commercial sector.[18]

The American university presses have been faced with difficult problems during the fiscal and other constraints of the past decade. As the prices of books have increased and library budgets have declined, average sales dropped at the same time that institutional support was cut back because of financial pressure. External funding for scholarly publishing also declined and this combination of circumstances spelled major difficulties for the university presses. Several closed and the number of titles published annually declined significantly. Most of the presses, however, survived and are relatively healthy now although long-term trends are difficult to predict.

The university presses are also an important part of the international knowledge network. Academic libraries and scholars abroad find that the products of the American university presses are important. The presses help to disseminate American scholarship abroad. However, very few books by foreign authors are published by these presses, so the traffic in knowledge is mostly one-way. There are some exceptions to this generalization -- Ohio University Press distributes scholarly books from Southeast Asia, the University of California Press has a distinguished list of Asian books, including many by Asian authors, and Princeton University Press has had a long relationship with the University of Tokyo Press -- but in general the American university presses tend to be rather insular.

While the economics of the university presses differs from commercial publishers because they are non-profit entities and are not subject to taxes, they are nonetheless part of the economic marketplace

of publishing. Rising costs of production and steady or decreasing library sales (most university press books are purchased by institutions) have placed pressures on the university presses. Institutional sponsors have been less willing to provide subsidies to their presses. The university publishers have to some extent become more 'commercial' in their orientation, searching for manuscripts that will sell in the marketplace. Some have even published cookbooks.

The university press is more important in the United States as a source of scholarly books than it is in any other country. Even in England, where Oxford and Cambridge university presses established the tradition of academic publishing, only a few of the other universities have presses. It must be kept in mind that both Oxford and Cambridge, while they publish many scholarly books, are publishers of textbooks, atlases, bibles and other non-scholarly items. In that sense, they are not "pure" university presses in the American sense. In Canada and Australia, there are a small number of university presses, and some have been established in Japan, Malaysia, Nigeria and other countries. In most of Europe, however, academic publishing is done by private sector publishers and not by the universities. In the Soviet Union, scholarly publishing is largely a responsibility of the various institutes of the prestigious Academies of Sciences, although Moscow University Press recently celebrated its 225th anniversary.[19]

The links between the university presses in the United States and their sponsoring institutions and their faculties are frequently rather distant. University administrators have a vague commitment to the press because it has traditionally been supported by the institution and is the source of considerable prestige.[20] But for the most part their

understanding of the role of the press and of its problems is very limited. The institution's faculty members are similarly distanced from the press. Some of their books are published by it, but few have any real understanding of its problems or role in the broader knowledge system.

The university press is the most visible element of a university's publishing role, but it is not the only one. American academic institutions engage in a wide range of publishing activities. Many departments, centers or schools have monograph or occasional papers series, some of which are quite extensive and successful. These series may be quite important in a particularly scholarly field and have an international reputation. They are frequently published without a great deal of expertise and they usually are heavily subsidized, frequently without very clear fiscal accountability. These semi-formal publishing activities are seldom subject to university scrutiny and there is no central record keeping. Distribution of these publications tends to be particularly deficient, since the departments or centers issuing them have neither the expertise nor the staff to effectively publicize and distribute the series. These publishing efforts, which might be called the "ephemeral publishing" activities of universities, are probably quite significant in scope. In general, these series need closer scrutiny, help with production and distribution and in general a more coordinated effort.

Universities also engage in other publishing activities. Books are sometimes sponsored or subsidized by academic institutions. Many colleges and universities have funds available to help faculty members get their manuscripts published. Institutions may lend their names to

the publishing activities of private sector publishers. Individual faculty members may use university facilities as they engage in publishing activities. It is not unusual, for example, for humanities professors to "self-publish" their own or their colleagues writing with the assistance of academic departments and using university facilities. Again, the institution seldom is aware of these activities. The more prestigious institutions in the United States engage in a wider range of publishing activities than the others, but publishing seems fairly widespread in the American academic system.

The Role of Journals

Scholarly journals, in most fields -- particularly in the sciences -- even more than books, are the key element in the knowledge distribution network. Journals, even in an age of computer-based data networks, are the standard means of communicating the latest knowledge in most academic fields. In some fields in the medical sciences, journals have been linked up with computer networks to provide instantaneous communications and this has meant that journal users do not have to wait for the usual lag in publication. In general, the traditional scholarly journal continues to flourish, relatively untouched by the technological revolution (except for using, in many cases, computer-assisted composing facilities). Scholarly journals are, with few exceptions, dependent on institutions of higher education for their survival. It is not an exaggeration to state that without the support, direct and indirect, of academic institutions all scholarly journals would collapse. Thus, it is important to look closely at the relationship between the scholarly journal and universities.

Academic libraries are the major purchasers of scholarly journals. In the United States, three-quarters or more of the circulation of research and scholarly journals goes to libraries. In the cases of the most expensive journals in the medical and scientific areas, libraries are virtually the only buyers. The economic impact of the academic libraries is even greater, since most journals charge a significantly higher subscription rate to libraries than to individuals. It is not unusual for 90% of a journal's income to be generated by libraries. Libraries are also more reliable purchasers, since they regularly renew their subscriptions and can be counted on for a long-term commitment. It is no exaggeration to say that academic institutions, through their libraries, are the economic backbone of the large majority of scholarly journals.

Academic institutions are important to journals in other ways as well. Most of the authors of scholarly articles are teachers or researchers in colleges and universities. Their institutions indirectly subsidize authorship in many ways. They provide incentives to write for publication through the promotion and reward systems of American higher education. It might be pointed out that academic systems with less direct emphasis on publication as a condition for employment or promotion generally have lower levels of scholarly writing and activity. Academic institutions also provide favorable conditions for scholarly publication through secretarial and other support facilities that are offered to their staff. Universities provide, in sum, a congenial institutional environment in which to produce scholarly writing. At least for untenured staff in the United States, the sanctions for not

producing scholarly writing are also considerable.[21]

In sponsoring academic journals universities provide office space, secretarial support and encouragement. In many countries, sponsorship of a scholarly journal is seen to lend prestige to the university. Scholarly editors are for the most part professors in universities, and they are frequently given released time to devote to their editorial responsibilities. In some instances, the institution often provides a direct financial subsidy to a journal as well as the usual indirect support given to non-sponsored publications. In the United States, several venerable journals which were under financial pressure were "rescued" by universities. The Partisan Review, for many years an independent journal, was sponsored by Boston University in an effort to keep it alive in a period of fiscal crisis for the journal. Other universities also helped to save independent literary and critical journals which found it difficult to survive in the inflationary period of the 1960s. The universities benefitted from the prestige of the journal and their faculties found it stimulating to work with the publications. With few exceptions, the academic sponsors permitted a great deal of intellectual freedom to their journals and in general the relationship seems to be mutually beneficial.[22] It is possible, however, that the professorial editors of the journals are less innovative and imaginative than the young independent intellectuals of an earlier day who founded the journals and managed them through difficult days. The fact is that American universities now sponsor many of the most successful of the "little magazines" that contribute significantly to the development of American creative writing and literary criticism.

The university presses, discussed earlier as book publishers, are also significant publishers of scholarly journals. The University of Chicago Press, probably the largest of the academic publishers of journals, is responsible for more than 40 journals in a dozen fields of scholarship. A number of American university presses publish journals, sometimes specializing in one or two disciplines. The university presses provide support services, financial stability, technical expertise and frequently a measure of prestige to the journals. In some cases, the presses publish journals which are associated with their university only, but frequently they issue a wider range of publications. In some instances, the press "owns" the journal, while in other circumstances, the journals are owned by scholarly societies or academic departments. The presses frequently find the journal business profitable, since it is more predictable than book publishing and it is useful to use the journals to publicize books and other publishing activities.

The publication of a scholarly journal does not require a massive financial investment, but it does take considerable expertise.[23] The technical aspects of journal publication, such as maintenance of subscription lists, arranging for composition, mailing and related functions are, in general, beyond the capability of academic editors, who have neither the time nor the expertise to handle the details of publication. Links with a publisher, sometimes a university press but often a commercial press, provide the needed technical expertise to permit the successful operation of a scholarly journal.

Universities are even more important to scholarly journals in some other countries than they are in the United States. This is

particularly true in the developing nations of the Third World, where the infrastructures of publishing are very limited and editorial expertise scarce.[24] Third World academic institutions frequently sponsor scholarly journals as a means of providing outlets for their publications of their faculties, of building up an indigenous tradition of scholarship, and as a means of communicating knowledge about the country to an external audience. The financial and staff commitments to these journals are relatively significant, since costs of production are high and academic budgets very limited. Further, local markets for scholarly publications are limited. Yet, journals are seen as a high priority, and it is usually more practical to publish a journal than to issue scholarly books.

In Western Europe, the universities play less of a role in both scholarly publishing and in journal publishing than is the case in the United States or in the Third World. Most scholarly journals are issues by private sector publishers. The universities, of course, provide the editors and the indirect support for editorial offices in much the same way this is done in the United States. The academic library market constitutes the larges and most lucrative source of subscribers. However, in most European countries, it seems that scholarly journals have a larger individual market, and since there are fewer universities, the institutional market is smaller. The economics of scholarly journals is somewhat different, but the basic culture of the journals is determined by the higher education system and by the academic profession.

It is thus universally the case that scholarly journals are integrally linked to higher education institutions. Yet, as is the case

with books, the institutions frequently do not pay attention to their roles as sponsors and subsidizers of journals. At times, academic policies tend to run in opposite directions. For example, while librarians facing budget cuts are eliminating subscriptions to academic journals, the editors of those journals, perhaps on the same campus, are asking for increased subsidies to make up for circulation declines. The extent of support and subsidies is virtually never known, partly because the costs are scattered throughout the institution. Individual professors provide a major amount of the subsidy through their unpaid work as editors, external reviewers and of course as authors of articles submitted to scholarly journals. Academic departments and institutes, by providing office space, secretarial assistance and sometimes postage and other expenses, are a major source of help. University presses, as publishers of journals, frequently add to institutional support. Central or faculty budgets are also important in some countries (typically in the Third World) for direct subventions for journal sponsorship.

Even in countries where the links are least direct, for example in Socialist countries of Eastern Europe and the Soviet Union, where journals are often published by the research institutions of the Academies of Sciences, university-based authors are prominent and a large part of the readership is located in higher education institutions.

Scholarly journals are part of the international knowledge network and frequently have a significant circulation outside the country of publication. The major internationally recognized journals, published almost without exception in the industrialized metropolitan nations,

dominate the international journal market. Language is part of the equation, since most of the journals that are circulated internationally are in one of the major languages -- especially English, French or Spanish. Several journals are multilingual, and these also play an international role. Unesco publishes journals in several different language editions -- by this means helping to bring scholarship from different countries, including the Third World, to an international audience. Journals in non-metropolitan languages may be influential in their own spheres and may be of very high quality, but they do not have a significant impact internationally.[25]

Scholarly journals are written, edited, and produced in the major metropolitan centers. They are then exported to the peripheries. Those institutions, and scholars, at the center have significantly better access than those at the periphery. Those outside the center -- whether in Mississippi or Mongolia -- are largely consumers of knowledge and of the products of knowledge, in this case scholarly journals. Universities at the periphery find it difficult to escape from what might be called the 'culture of intellectual poverty' and difficult to obtain access to either the journals themselves or even, in significant ways, to opportunities for publication in them. The cycle of poverty, so familiar in other arenas, keeps those without access to the pinnacles of scholarly prestige -- the major internationally recognized academic journals -- at a disadvantage. In this case, poverty is not necessarily a matter of a lack of financial resources, although this is frequently the case, but it is more complicated. Countries like Kuwait, with considerable financial resources and a strong desire to build a top quality university, has been unable to move into the first rank.[26] The

use of a non-metropolitan language (in this case Arabic), the lack of strong scholarly norms, inadequate laboratory and other facilities in some areas, and a number of other factors have hindered the development of the university. Kuwait University has established several scholarly journals but these have not moved into the forefront of international publications, although they are widely circulated in the region.

The journals are a major means of certifying the quality and prestige of academic institutions. There is prestige attached to housing a journal on campus, and also relating to the number of publications of an institution's faculty.

The University as Gatekeeper[27]

The fact that academic institutions are key gatekeepers of knowledge is frequently forgotten and it is worth discussing in the context of knowledge dissemination. Research oriented universities create an atmosphere in which knowledge creation is valued -- indeed it is necessary for promotion within the academic system. Universities, through their presses, journals, peer review networks, academic departments and research centers, and individual faculty members constitute a key validation process for knowledge. In a sense, these mechanisms decide what knowledge is legitimate and what is not. They determine, to a considerable degree, what gets published and what does not. If knowledge is not certified by these academic networks, it may never see the light of day, or if it does, it may not be considered valuable.

This is an awesome responsibility, yet it is one which is seldom discussed in universities. The gatekeeping function occurs in the natural order of academic decision making and it is, appropriately,

highly decentralized. Gatekeeping occurs as part of the academic personnel review process for tenure and promotion. It happens in the offices of the scholarly journals, where manuscripts, usually subjected to peer review, are accepted or rejected. It takes place in the decision of university presses, again aided by peer review, which decide what manuscripts will be published.

The universities, through these mechanisms of review, provide a mandatory service. Qualitative judgments need to be made since all knowledge is not equal and validation is necessary. It is particularly important as the knowledge explosion proliferates information beyond the capacity of individuals to absorb it. Thus, reliable means of making evaluations are key to both knowledge creation and dissemination. The fact, however, that such a large part of the evaluation and gatekeeping function takes place in institutions of higher education is cause for some concern. Despite the fact that the process is decentralized within the institution, the overarching norms and orientations of the university will tend to underlie most of the decision making structures.

Universities are conservative institutions. They are slow to change their structures, values and orientations.[28] It may well be that the basic approach to validating knowledge is also conservative and that the gatekeepers may be slow to accept innovative ideas. Anti-establishment ideas may take a long time to seep into the consciousness of the academic gatekeepers and thus achieve legitimacy. The fact that the universities hold something close to a monopoly on the validation of knowledge gives them enormous power and also special responsibilities in these matters. Decision making structures, while decentralized, tend to be self-perpetuating and made up of members of the same invisible

colleges.[29] Gatekeepers tend to be concentrated at the most prestigious institutions and the networks that are developed within the small circle of powerful scholars and evaluators, including journal editors and press personnel, in many disciplines is small and tight.[30]

At the international level, gatekeeping also tends to be centralized in the major institutions in the industrialized nations and tends to make it very difficult for non-metropolitan scholars or institutions to break into the system. The network of inequalities discussed earlier is reinforced by the gatekeeping system. Even where scholars were trained in universities in the centers, they find it difficult to remain fully up to date and linked with the network of key scholars who hold the main levers of gatekeeping power. From this perspective, while gatekeeping is decentralized within institutions, it seems highly concentrated from the outside and access is frequently quite difficult. There is, thus, a curious combination of decentralization and common understandings that yield networks of gatekeepers which are not easy to manipulate. These networks may well be too conservative and bound up with not only the status and prestige systems of the major institutions but also with established methodologies and approaches to science and scholarship.

Universities as Markets

In many respects, universities are both producers and consumers of their "products." They hire a significant proportion of their doctorates as junior staff members. A substantial part of the "pure" research that is produced is aimed at an academic audience. While

research funding opportunities and priorities are determined by external forces, the academic community has an important voice in determining research agendas. Academic institutions are, in this respect, relatively independent and they play a key role in determining their own agendas and in providing a market for their graduates and their research.

Institutional priorities help to determine how funds will be spent. For example, if libraries are starved of acquisitions funds, as occurred in the United States in the 1970s, the economic market for scholarly publishing changed dramatically. If universities do not purchase books and journals in significant amounts, as is true in many countries, local scholarly publishing and by implication research may well be curtailed. If academic libraries shift their acquisitions budgets from books to journals, as is common throughout the world, book publishers will suffer and the publishing equation shifts. In fact, scholarly publishers now can count on a smaller average sale of a scholarly book title precisely because of this shift in priorities. Journal publishers, on the other hand, are able to sell more subscriptions and to charge higher prices for their products. Universities may shift their priorities from the humanities to science and engineering and this will frequently affect library purchases and journal subscriptions. Subtle changes in interests and academic decisions only marginally related to knowledge dissemination can have significant implications for markets for scholarly publications.

In the United States, it is estimated that about 80% of the sales of university press books is to the library market -- the bulk of which is to college and university libraries.[31] For scholarly journals,

statistics are similar, but with a larger proportion of the income coming from libraries.[32] In Europe, the market for scholarly books is somewhat more diverse, with individuals purchasing a large percentage of the output and the academic libraries in any case a smaller network. In the Third World, the small number of academic libraries are virtually the only market for scholarly publications, since the individual scholar is frequently too poor to afford research monographs or journals. Scholarly publishing and, for that matter, the entire knowledge dissemination infrastructure would immediately collapse without the academic library market.

University libraries have, in the past decade, been subjected to a variety of pressures and strains that have made them less effective "consumers" of scholarly products. Indeed, the problems of academic libraries have caused something of a crisis in scholarly publishing. Budget cuts in the 1970s were frequently allocated first to such support services as campus maintenance and the libraries. Libraries frequently cut their acquisitions back significantly.[33] The result in the United States was a major economic crisis for the university presses. As a result, there are fewer university press titles published annually now than was the case fifteen years ago. Few new journals were added to the collections at a time when knowledge was expanding rapidly. In many libraries, journals not frequently used were dropped from the collections, sometimes breaking a run of twenty or thirty years. Staff cuts in university libraries meant that less care was taken in the selection of books and journals. All of these decisions, made for fiscal reasons, had a significant impact on the knowledge dissemination infrastructure in America.[34] As the recession of the 1970s abated and

as university budgets increased, some of these pressures have eased, but the fact is that the major consumer of scholarly materials is a fragile institution which can easily be damaged -- with unanticipated but serious consequences for knowledge dissemination.

Data-bases are another intellectual "product" which, so far, have been primarily linked to academic libraries. Libraries are the primary purchasers of data-bases and most users seem to work through libraries. Most libraries subsidize the use of data-bases although many are beginning to charge patrons for data-base services. Private enterprise has also established data-bases in specific areas, and these have frequently proved profitable. The emergence of the data-bases also has international implications. Virtually all of the data bases are headquartered in the industrialized countries, and particularly the United States. They are frequently available worldwide through the use of satellites, and users in any part of the world can join the network. But data-bases in many ways reinforce the power of the industrialized powers since they control the use of the bases and the large proportion of the material in the data-bases is from research in these countries.

In a basic way, since universities constitute the largest community of scholars, researchers and students in all countries, it is not surprising that they are the major consumers of knowledge "products," from laboratory equipment to books, journals and data-bases. The academic community is also a major consumer through individual purchases by professors and students. Universities constitute communities of intellectuals who support bookstores, software markets, and other commercial enterprises that thrive because of the academic community and which contribute to knowledge dissemination. The university, and its

environment, as a market for scholarly products of all kinds is of primary importance in ensuring that books, journals and other items will have a sufficient sale.

Conclusion

Higher education institutions are not only teaching and research centers, they are also at the heart of the knowledge dissemination system in modern society. It is not an exaggeration to say that without academic institutions, the basic structure of knowledge dissemination would collapse. Academic institutions provide the institutional environment for the creation of knowledge through their facilities, reward structures and ethos.[35] They also provide the major market for scholarly products. The knowledge dissemination network also has international implications in that books, journals and increasingly data-base information travels across international frontiers. This international network is also directly related to higher education institutions, and extends from the major centers of research and publishing in the industrialized nations of the West to much of the rest of the world.

Despite their key role in this very important enterprise, higher education institutions seldom have any specific policies relating to their function as knowledge disseminators. Few realize the depth or complexity of the relationship. There is little understanding of the implications of university decisions on the nature of the network. This essay has provided a framework for understanding the complex and very important relationship between academic institutions and knowledge dissemination. An understanding of the nature of the dissemination infrastructure and the key role of universities in the network will, it

is hoped, lead not only to more careful analysis of an important but unresearched area but also to wiser policies to ensure a creative relationship between the production of knowledge and its effective dissemination.

Footnotes

1. Philip G. Altbach, "Servitude of the Mind?: Education, Dependency and Neocolonialism," Teachers College Record, 79 (December, 1977), pp. 197-204.

2. This essay is based on longstanding concerns with the role of higher educational institutions in the development and distribution of knowledge. See Philip G. Altbach, "The Dilemma of Success: Universities in Advanced Developing Countries," Prospects, 12 (No. 3, 1982), pp. 293-312 and Philip G. Altbach, "Scholarly Publishing in the Third Worlds," Library Trends, 25 (Spring, 1978), pp. 489-505. I am indebted to Lionel Lewis and Jeanne Weiler for their comments on an earlier draft of this essay.

3. Joseph Ben-David has written extensively n the role of the university and its relationship to research. See his Centers of Learning: Britain, France, Germany, United States (New York: McGraw-Hill, 1977) and Fundamental Research and the Universities: Some Comments on International Differences, (Paris: Organization for Economic Cooperation and Development, 1968).

4. Mary Biggs, ed., Publishers and Librarians, (Chicago: University of Chicago Press, 1984).

5. Diana Crane, Invisible Colleges: Diffusion of Knowledge in Scientific Communities, (Chicago: University of Chicago Press, 1972).

6. See James M. Kittelson and Pamel J. Transue, eds. Rebirth, Reform and Resilience: Universities in Transition 1300-1700, (Columbus, Ohio: Ohio State University Press, 1984) and Harold Perkin. "The Historical Perspective," in Burton Clark, ed., Perspectives on Higher Education, (Berkeley, California: University of California Press, 1984), pp. 17-55.

7. Laurence R. Veysey, The Emergence of the American University, (Chicago: University of Chicago Press, 1965).

8. See Edward Shils, "Center and Periphery" in Edward Shils, Center and Periphery: Essays in Macrosociology, (Chicago: University of Chicago Press, 1975), pp. 3-16.

9. A J. Engel, From Clergyman to Don: The Rise of the Academic Profession in Nineteenth Century Oxford, (Oxford: Oxford University Press, 1983).

10. It is worth noting that the Soviet Union does not fully participate in the international knowledge network because of political constraints. This is widely credited with limiting the development of science in the Soviet Union. China, during the Cultural Revolution, also turned its back on the outside world, and learned that isolation was not effective. Burma and Albania have pursued similar politics.

11. "English: Out to Conquer the World," U.S. News and World Report, (February 18, 1985), p. 50.

12. Louise Weinberg, "The Photocopying Revolution and the Copyright Crisis," Public Interest, No. 38 (Winter, 1975), pp. 99-110. See also Thomas R. Leavens, "In Defense of the Unauthorized Use: Recent Developments in Defending Copyright Infringement." Law and Contemporary Problems, 44 (Autumn, 1981), pp. 3-26.

13. Philip G. Altbach and Y. G. M. Lulat, "International Students in Comparative Perspective: Toward a Political Economy of International Study," in P. G. Altbach, D. H. Kelly and Y. Lulat, Research on Foreign Students and International Study: An Overview and Bibliography, (New York: Praeger, 1985), pp. 1-66.

14. Eugene Garfield, "Mapping Science in the Third World," Science and Public Policy, 10 (June, 1983), p. 114.

15. Scholarly Communication: The Report of the National Enquiry, Baltimore: Johns Hopkins University Press, 1979).

16. Eleanor Harman, ed., The University as Publisher (Toronto: University of Toronto Press, 1967).

17. Rush Welter, Problems of Scholarly Publication in the Humanities and Social Sciences, (New York: American Council of Learned Societies, 1959). See also Chandler Grannis, "Scholarly Publishing," in The Book Publishing Annual, (New York: Bowker, 1985), pp. 4-8.

18. Gene R. Hawes, To Advance Knowledge: A Handbook of American University Press Publishing, (New York: American University Press Services, 1967).

19. Gregory Walker, Soviet Book Publishing Policy (Cambridge: Cambridge University Press, 1978).

20. Scholarly Publishing, a journal published by the University of Toronto Press, is the best means of following developments in scholarly publishing in general and among the university presses in particular.

21. Academic staff in the most prestigious universities seem to have better access to the key scholarly journals than those in undergraduate colleges or less research-oriented universities in the United States. There is greater stress on publication in these prestigious institutions. Thus, there are considerable variations in scholarly writing in the United States.

22. One exception to this happy relationship is the censorship of the Chicago Review by its academic sponsor over the issue of publishing writings of the Beat Generation. The "Beats" left the the journal and started their own publication, Big Table, and the Chicago Review lost a place in literary history.

23. See Claude T. Bishop, How to Edit a Scientific Journal, (Philadelphia: ISI Press, 1984) for a practical guide to the publication of academic journals.

24. For a perspective on Third World journal publishing, see Philip G. Altbach, "The Role and Nurturing of Journals in the Third Worlds," Scholarly Publishing, 16 (April, 1985), pp. 211-222.

25. For an overview of journal usage, see Eugene Garfield, "Science in the Third World," Science Age (October-November, 1983), pp. 59-65. Garfield notes that few Third World countries produce journals that are widely used internationally. India is the only country that seems to have much impact.

26. Hassan Ali Al-Ebraheem and Richard P. Stevens, "Organization, Management and Academic Problems at an Arab University: The Kuwait University Experience," Higher Education 9 (March, 1980), pp. 203-218.

27. I am indebted to Lewis Coser for this concept as applied to book and journal publishing. See Lewis Coser, "Publishers as Gatekeepers of Ideas," Annals of the American Academy of Political and Social Science, 421 (September, 1975), pp. 14-22.

28. Murray Ross, The University: Anatomy of Academe, (New York: McGraw-Hill, 1976). See also Philip G. Altbach, University Reform: An International Perspective, (Washington, D.C.: American Association for Higher Education, 1980).

29. Diana Crane, op. cit.

30. See Walter W. Powell, Getting Into Print: The Decision-Making Process in Scholarly Publishing, (Chicago: University of Chicago Press, 1985).

31. Don Swanson, ed., The Role of Libraries in the Growth of Knowledge, Chicago: University of Chicago Press, 1980).

32. Fritz Machlup and Kenneth Leeson, Information Through the Printed Word: Volume 2: Journals, (New York: Praeger, 1978).

33. At least one major American university, the University of Wisconsin at Madison, completely stopped purchasing new books and journals for an extended period.

34. Fritz Machlup and Kenneth Leeson, Information Through the Printed Word: Volume 3: Libraries, (New York: Praeger, 1978).

35. Edward Shils, The Academic Ethic, (Chicago: University of Chicago Press, 1983).