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Curriculum: Graduate

In the eight hundred years since the University of Bologna conferred the first doctoral degree in the twelfth century, graduate education has become an important part of higher learning in many countries throughout the world. At first chiefly through instruction, and since the nineteenth century through both instruction and research, graduate education has played a prominent role in countries with major systems of higher education. It is of signal importance in preparing individuals to assume leadership positions in educational, scientific, economic, and political institutions. Moreover, the research activity associated with the graduate curriculum is an important source of new knowledge in many countries.

The themes of diversity and change cut across the literature on the graduate curriculum. Systems of graduate education in different countries continue to be diverse, reflecting each society's history and contemporary environment. At the same time, movement toward uniformity across nations is also apparent, as common technological, economic, and social forces lead to similar trends, and as higher education policymakers in different countries look to one another for effective ways to improve graduate curricula.

This article is presented in two major parts. The first part provides historical background and identifies major trends across national systems of graduate education. The second part focuses on trends, innovations, and related issues in graduate curriculum in the United States near the end of the twentieth century.

1. Survey of Graduate Education

Graduate education around the world generally is modeled on European, and more recently United States, universities. Before the nineteenth century it was patterned largely on French and English institutions, and entailed instruction in the existing body of knowledge. Scholars produced theoretical and interpretive contributions to new knowledge, but were not expected to train their students in research. The modern conception that there is a natural unity between research and advanced study was introduced in Germany in the early 1800s, when professorial appointments were made on the basis of original research, courses were selected and taught according

to the needs of the professoriate, and students were admitted only after having acquired a broad liberal education. It was in these universities that the "seminar," in which students are taught research techniques by exploring the current research topic of a teacher, was developed. It was also in these universities that scientific laboratories directed by individual researchers were first established. Students in German universities studied with renowned teachers/researchers, and obtained their academic diploma after passing their examinations. They were then free to present a thesis based on research for a doctorate. German universities did not grant professional degrees of any sort. Students left the university and either became apprentices or took nonacademic courses to gain entrance to the professions, including that of university teaching.

Students from Europe, the United Kingdom, Japan, and the United States studying in German universities took the principle of unity of research and study back to their own countries and attempted to adapt it to their existing systems of higher education. In France, for example, the research function was largely "added on": new research units were established, while the purposes and structure of the existing universities remained essentially the same. In the United Kingdom university professors came to be evaluated on their research attainments, but meeting students' needs for intellectual and career development remained more important than in the German system. This idea was integrated into the United States system during the last three decades of the nineteenth century, as the university movement gained momentum. There, the concept of the unity of research and study was incorporated not by adding research to undergraduate study, but by changing undergraduate institutions (with the introduction of the elective system of liberal education and preprofessional studies) and by developing graduate schools. With these changes, both the undergraduate and graduate programs were offered by a single faculty. The Morrill Act of 1862 provided for publicly supported "land-grant" institutions, which were designed to provide undergraduate education as well as advanced training in the professions and in basic and applied research in the liberal arts and sciences.

The new graduate schools in the United States were organized into departments, which were focused on individual professors, or "chairs." The departmental structure gave faculty substantial freedom to develop as research specialists. Courses, research training, and supervised research—all designed to teach and train students in advanced practice or research—were included in the graduate curriculum.

European societies, and in the twentieth century, the Soviet Union, responded to the changes in graduate curricula in the United States by establishing separate research instititions. Hence, during this period graduate schools were not developed in these countries. In the Soviet Union these research institutes were directed by national planners who sought to coordinate research with state economic development. The notion of using central planning to ensure that scientific research contributes to national development was adopted generally by European countries during the 1920s and 1930s.

In the 1940s the Manhattan Project, the organized research effort that produced the atomic bomb, introduced a new period in the United States characterized by major governmental support for university research. After the Second World War, the federal government continued to provide major research funding to universities, based on the idea that research was crucial to the development of the economy and social welfare. Unlike the state-supported European and Soviet research institutes, however, the United States federal government did not superimpose research agendas. Instead, various national commissions and foundations of scholars and scientists directed research funding on the basis of the project grant and peer review system. This system and the ample funds available through the 1960s resulted in an efflorescence of university research productivity, accompanied by major changes in graduate curricula and substantial increases in graduate degrees earned.

In areas of the world that had been colonized by European nations and the United States, systems of higher education tended to be modeled on the systems of the colonizing countries. Hence, in Latin America and Africa (and prior to the 1960s, in South East Asia), research tended to be conducted by institutes outside of the universities. In post-Second World War Japan, and, in South East Asia in the 1960s, United States-style graduate-level programs were established in major universities. Canadian universities chose to adopt the United States model of graduate education during the twentieth century (Ben-David 1985).

The graduate schools that flourished in the United States after the Second World War attracted students from around the world who, like the foreign students who studied in Germany a century and a half earlier, returned to establish university-based graduate programs in their home countries. The numbers of graduate programs and degrees earned during this period grew, not only in the United States but also in Japan and Europe. This growth reflected high student demand, increased specialization of knowledge, increased demand for a scientifically trained workforce, and the general availability of research funding.

The rapid growth after the Second World War slowed or leveled off in most countries during the 1970s and 1980s, partially due to changes in the employment situation. Although graduate enrollments have leveled off, in many countries the num-

ber of institutions granting graduate-level degrees has continued to increase, accompanied by slight declines in the percentage of graduate degrees granted by the largest universities. In all likelihood, this trend is related to the aspirations of newer universities to offer higher-level degrees (OECD 1987).

Changing labor market demands have had a major impact on graduate-level curricula. The increasing demand for people with advanced training and some knowledge of research methods, particularly in technological areas, appears to be associated with the introduction and expansion of intermediate-level degrees (somewhat equivalent to the master's degree in the United States). Data show that where intermediate-level graduate degrees, particularly in the professional areas of business, engineering, and law, are offered, greater numbers of these degrees are granted (OECD 1987). Many countries are also shifting toward an increasing reliance on business and industry for research funding and an increase in university–industry cooperation.

Graduate student characteristics have also changed since the 1970s. A survey of the countries in the Organisation for Economic Co-operation and Development (including Austria, Belgium, Canada, Denmark, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, Turkey, the United Kingdom, the United States, Japan, Finland, Australia, and New Zealand) indicates that an increasing percentage of graduate students, particularly in the arts and social sciences, are pursuing their studies part-time. For example, during the early 1980s in Australia, Sweden, and the United States, approximately 60 percent of the graduate students were part-time, although the percentage was fairly small in other countries, such as Japan (29% in 1982). Debates about the advisability of a high percentage of part-time graduate students focus on the low rates of completion for part-time students, the advantages of integrating work experience with ongoing graduate study and research, and the positive value of making graduate work available to as many people as possible, regardless of likelihood of degree completion (OECD 1987).

Data from various countries also show that the percentage of women in graduate study is increasing, but not uniformly across discipline areas. The participation of women is highest in the United States (in 1986–87, it was 52% at the master's level and 31% at the doctoral level), but remains low in other countries (e.g., 13% in Japan in 1983). These data conceal the low proportion of women in the natural sciences and engineering in all countries surveyed. For example, in 1980–81, women held only 4 percent of the engineering doctorates granted in the United States. The 1987 OECD report notes that the disciplines with the greatest increases in the percentages of women graduate students—the humanities and social sciences—are likely to be those with the weakest employment opportunities (OECD 1987).

Another demographic change is an increase in the average age of graduate students. Students in the natural sciences and engineering tend to be younger and have shorter lapse time since earning a baccalaureate degree than those in the social sciences and humanities. The increase in average student age may be due in part to the increase in the percentage of part-time students, to the trend for graduate students to spend time in the workforce between their undergraduate and graduate work, and also to an increase in the time to complete a degree. These trends are noted in all of the countries participating in the 1987 OECD study. On the other hand, the increases in the number of students earning shorter-term master's degrees would tend to keep the average age of graduate students from rising (OECD 1987).

Another trend in student characteristics is an increase in the internationalization of the student population in some countries, particularly the United States. In the United States the percentage of nonresident aliens receiving doctoral degrees rose from 15.2 in 1975–76 to 16.4 in 1984–85, with very high percentages in engineering, mathematics, and the physical sciences (44.1, 36.1, and 20.2% respectively in 1984–85). The internationalization of graduate study is considered desirable, but only within certain bounds. There is concern about the high percentages in some disciplines in the United States, while other countries, such as France, are seeking ways to increase their percentage of foreign students (OECD 1987).

Studies in several OECD countries have associated the trend toward lengthening the time required to complete graduate study with a perceived problem of non-completion of degrees. Older, part-time students in the humanities and social sciences appear to have the lowest completion rates and highest age at completion. Many of these studies associate completion problems with inadequate student motivation, which in turn is associated with inadequate faculty supervision, lack of a research ethos at the departmental level, inadequate financial circumstances, family responsibilities, and weak job markets (OECD 1987).

As indicated above, the United States attracts by far the largest number of graduate students from other countries. If, as has been the case since the mid-nineteenth century, developments in graduate education spread out from the country to which international students are most strongly attracted, changes in graduate curricula around the world will most likely follow emerging trends in the United States. These trends, in turn, are best understood in historical and socioeconomic context. The remainder of this article therefore, is devoted to a brief discussion of the context of graduate education in the United States, and to a more detailed review of

comparatively recent developments in graduate education in that country.

2. Major Developments in Graduate Curriculum in the United States

The first PhD awarded in the United States was granted by Yale University in 1861. Since that time, the United States has witnessed the emergence of a system of graduate education characterized by diversity in purposes, students, institutions, and fields of study (Berelson 1960). Most colleges and universities, however, were slow to introduce significant changes in their graduate programs until the 1970s. A number of factors deterred change: the domination of the "prestige model" of higher education, in which innovation leading to increased differentiation was viewed as a sign of weakness; an inherently conservative tendency, coupled with participative modes of decision making; and a widespread attitude that major changes were likely to threaten autonomy and undermine quality (Albrecht 1984, Solmon 1984).

Despite this history of resistance to change, there has been substantial innovation in graduate education since the early 1970s. These changes have been made largely in response to a complex web of demands and oppportunities fueled by the larger society: concern about economic development and international competitiveness, new technologies, demographic change, the transition from an industrial to an information society, changing job prospects for graduate students, and the needs of nontraditional students (Albrecht 1984, Pelczar and Frances 1984). Within higher education, the explosion of knowledge has spawned new careers and educational needs. Moreover, severely limited resources and stable or declining enrollments have encouraged many institutions to initiate changes in graduate curricula in order to generate new sources of revenue. In short, the confluence of external pressures and institutional needs has made colleges and universities more directly responsive to society and has led to widespread change in graduate education. Considered below are five trends in graduate curricula.

2.1 Proliferation of New Programs of Study

The proliferation of new programs of study at the graduate level since the mid-1970s can be attributed in part to the growing complexity of knowledge and the demand for people with highly specialized training. Glazer (1987) discusses the avalanche of master's degree programs and titles, noting that there are over 660 different titles of master's degrees. There has been less proliferation at the doctoral level, but new doctoral programs have been created as well.

New programs have been established both through the development of innovative specializations within existing fields and through the creation of entirely new fields of study. Some business schools have introduced new specializations in areas such as international marketing and advertising management (Hugstad 1983). In the field of education, new master's and doctoral specializations have been established in developmental education and teaching English as a second language (Carroll 1982). Other examples include the Master of Law and Taxation (MLT) and the Master of Industrial Design (MID) (Pelczar and Frances 1984).

Most of the new fields of study (as distinct from new specializations) are interdisciplinary and problem centered. In the biological sciences, for example, the relatively new doctoral field of human cancer biology integrates knowledge and perspectives from established disciplines such as biology, anatomy, immunology, and physiology (Blount 1982). Many of the new interdisciplinary fields—for example, liberal studies, genetic counseling, women's studies, environmental studies, and gerontology (Hatala 1982, Williams 1983)—are integrated by design. Others, most frequently found at the master's level, combine coursework in several fields through joint degree programs. Examples include new dual master's degree programs in social work and public health, social work and communication, and business and engineering (Goldberg et al. 1985, McClelland 1985).

2.2 Enrollment Trends: Increasing Predominance of Professional Fields

During the first half of the 1970s there was an overall increase in graduate enrollments as student matriculation at the master's level increased dramatically, peaking at about 317,000 degrees conferred in 1976–77. From the mid-1970s until 1984, the number of master's degrees awarded annually declined modestly and thereafter shifted slightly upward. Meanwhile, the number of doctoral degrees awarded annually has remained relatively constant since the mid-1970s, ranging from a low of slightly over 32,000 in 1970–71 to a high of nearly 35,000 in 1972–73 (US Department of Education 1988).

Although the trend in overall graduate enrollments remained flat through most of the 1970s and 1980s, there were dramatic shifts among the fields: a steady increase in the percentage of enrollments in professional programs (such as business, education, engineering, public affairs, and computer and information sciences) was offset by a decline in the percentage in the arts and sciences (including the humanities, social sciences, and natural sciences).

Growth in the professional fields has occurred at both the master's and doctoral levels, but has been much more pronounced at the master's level. The most recent data on degrees conferred show that in 1986–87 professional master's degrees accounted for 84 percent of the master's degrees awarded (see Table 1). Nearly half of all master's degrees earned

Table 1
Master's and doctoral degrees conferred in the United States by field 1986–87

	Master's	Doctoral
Professional		
Agriculture and natural resources	3,523	1,049
Architecture and environmental design	3,142	92
Business and management	67,496	1,098
Communications	3,937	275
Computer and information sciences	8,491	374
Education	75,501	6,909
Engineering	22,693	3,820
Health sciences	18,426	1,213
Home economics	2,070	297
Law	1,943	120
Library and archival sciences	3,815	57
Military sciences	83	0
Parks and recreation	476	32
Protective services	1,019	18
Public affairs	17,032	398
Theology	4,881	1,236
Visual and performing arts	8,506	792
Total	243,034	17,780
Percentage of grand total	84	52
Arts and Sciences		
Area and ethnic studies	851	132
Foreign languages	1,746	441
Letters	6,123	1,181
Liberal/General studies	1,126	29
Life sciences	4,954	3,423
Mathematics	3,321	725
Multi/Interdisciplinary studies	3,041	276
Philosophy and religion	1,108	422
Physical sciences	5,652	3,672
Psychology	8,204	3,123
Social sciences	10,397	2,916
Total	46,523	16,340
Percentage of grand total	16	48
Grand total	289,557	34,120

Source: Earned degrees conferred, 1986–87. *Chronicle of Higher Education Almanac*, September 6, 1989, p. 16

are in the fields of education and business, with engineering, the health sciences, and public affairs accounting for another fifth. It is interesting that of all the professional fields, education still attracts the highest number of master's-level enrollments, despite the fact that master's-level education enrollments declined in the 1980s (US Department of Education 1989).

At the doctoral level, traditionally dominated by the arts and sciences, about 52 percent of all degrees awarded in 1986–87 were in professional fields. In 1986–87, nearly one-third of all doctoral degrees were awarded in education and engineering. The number and proportion of degrees awarded in the humanities and social sciences remained relatively constant, but there have been significant declines in the natural sciences since the mid-1970s (US Department of Education 1989).

Among the factors driving the substantial enrollment increases in professional fields are the shift to a knowledge-based society and the accompanying need for individuals with advanced professional education, the enhanced value of a professional graduate degree as a credential for job advancement and social mobility, and the desire shown by many professions to increase their status by requiring graduate-level work (Larson 1977, Zumeta and Solmon 1982). Various arts and sciences, in response to some of these factors, are also changing both the master's and doctoral curricula. Especially in the humanities, graduate departments are creating new applied options within existing programs, or developing entirely new applied fields. For example, a few history departments have developed concentrations in applied history (such as public history), some philosophy departments have created applied concentrations in ethics studies (such as medical ethics), and a substantial number of English departments have established programs in the teaching of writing and the teaching of English as a second language (Fulton 1984). While not mainline options in all departments, these applied emphases clearly indicate that the boundaries between the arts and sciences and the professions are changing.

2.3 Expansion of the Formal Acceptance of Experiential Learning

Closely related to the increasing dominance of professional fields in graduate education is the growth in the formal acceptance of experiential rather than didactic modes of learning. One observer has stated that the trend toward formal acceptance of experiential learning signifies "a conceptual leap of enormous proportions" in graduate study (Spencer 1986 p. 3). Broadly defined, this kind of learning

> emphasizes the integration of cognitive concepts with affective and psychomotor application of the concepts. It emphasizes the integration of didactic instructional methods with the self-instruction that comes through experience outside the classroom. It emphasizes the integration of deductive logic with the insights of inductive logic. By submitting theory to the test of experience and experience to the test of theory, experiential learning is intended to create a critical dialogue within the mind of the learner. (Allen 1982 p. 68)

In other words, its purpose is to enhance the value of theoretical knowledge and practical experience by integrating the two.

The expansion of experiential learning is linked to the rise of the professions, the increased interest in knowledge that emphasizes the practical aspects of emerging problem areas, the changing demands of the marketplace, and a growing recognition of the

diverse backgrounds and motivations of graduate-level students (Allen 1982, Mayhew and Ford 1974). While most frequently appearing in the curricula of career-oriented master's programs, formal acceptance of experiential learning is occurring at the doctoral level as well.

In 1973, the Panel on Alternative Approaches to Graduate Education identified nonacademic (experiential) learning as one of eight critical areas in graduate education in which change and innovation were most needed. Since then, the new emphasis on experiential learning at the graduate level has been reflected in the widespread adoption of, for example, internships, field study, apprenticeships, practica, clinicals, and cooperative education (Keeton 1982, Maehl 1982). In some cases, entire programs can be classified as experiential. For example, the innovative master's programs offered through Antioch College require supervised, field-based internships in a variety of disciplines (Rader 1982). The experiential master's program in business administration at Southern Methodist University requires project-based experience as a primary tool in developing business and management skills (Wolfe and Byrne 1980). More widespread, however, is the practice of incorporating experiential learning into existing programs. For example, Patton (1988) describes a practicum in research administration that seeks to integrate research skills and theory with applied practice.

Jacobs (1982) identifies 12 graduate and professional programs at the master's and doctoral level in which various experiential components—from professional practice and field seminars to project courses and field work—are integrated into the philosophy and design of each program. He isolates four major characteristics of successful, rigorous programs: linkages with practicing professionals, reinforcement of student integration of theory and practice, quality control through close supervision, and integration of experiential and didactic components.

Some elite graduate institutions and some disciplines in the arts and sciences continue to resist the formal adoption of experiential learning components. For the most part, the criticism has focused on quality assurance. The practice of awarding graduate credit or advanced graduate standing based on the assessment of prior experiential learning (Maehl 1982) has come under especially strong criticism. The so-called "diploma mills" that assign credit for "life experiences" without adequately assessing the kind of learning that has taken place have been castigated severely (Stewart and Spille 1987 p. 47).

Despite these reservations, however, there is a growing belief within the academic community that there can be a valid and reliable assessment of experiential learning, and that appropriate modes of experiential learning can greatly contribute to graduate education (Oxnard 1982). Accordingly, in both traditional and nontraditional institutions, an increasing number of professional and graduate programs are incorporating a range of experiential modes of learning alongside didactic modes.

2.4 Growing Cooperation Between Universities and the Private Sector

The 1980s have been labeled the decade of the "business–university partnership" or "industry–university liaison," in recognition of the growing cooperation between universities and private industry (Fairweather 1988). In addition to philanthropic relationships, these endeavors include highly visible research and technology transfer agreements, as well as cooperative efforts to provide education, training, and professional development at both the undergraduate and graduate levels. The focus here is on instruction-related liaisons at the graduate level.

Increasing cooperation between business and universities at the graduate level is motivated by a combination of factors (Fairweather 1988). On the one hand, businesses are seeking to gain a competitive edge by enhancing their human capital. By supporting relevant graduate programs they not only gain the attention of good students who may wish to become their employees, but also enhance continuing education opportunities for their current employees (Baldwin and Green 1984–85). On the other hand, colleges and universities have much to gain from business and industry: improved student and faculty access to new technological developments, especially in technical and scientific fields; access to needed part-time faculty from industry; improved relations with state and federal government, gained by demonstrating a commitment to enhancing economic productivity; and needed resources during a period of financial steady-state in higher education (Matthews and Norgaard 1984).

There are different kinds of industry–university cooperation that affect graduate-level education. Some industry funding is targeted for graduate programs, although most is intended to support research more directly (National Science Board 1986, Ping 1981). A few corporations contribute part-time faculty to graduate programs, especially in fields with faculty shortages (Fairweather 1989). Some businesses fund graduate assistants as part of research partnerships (Praeger and Omenn 1980), while a number of companies offer third-party payment plans that provide tuition remission or other subsidies to employees wishing to pursue advanced degrees.

The form of university–industry collaboration that has the greatest impact on graduate-level education is the formal program alliance. In this alliance, industry provides students who are seeking particular graduate expertise, and colleges and universities retain the authority to award the degrees. Not surprisingly, most of these are master's-level programs in technical

and professional fields, especially engineering and business (Fairweather 1988). Eurich (1985), among others, discusses the rapid growth of these cooperative programs.

Co-sponsored programs in engineering, a technical field engaged in a nationwide effort to provide graduate education for working engineers, provide good examples of these cooperative alliances. For example, the master's program in software engineering at Seattle University was developed with the assistance of the Boeing Corporation to provide advanced training for Boeing employees (Eurich 1985). Another example is the well-known National Technological University (NTU), established in 1984 to award master's degrees. Through cooperative agreements, NTU distributes televised master's courses via satellite from more than 30 universities to over 300 corporate sites (Fields 1987). It is expected that by the turn of the century, NTU will be a major provider of master's degrees in engineering.

While industry–university alliances are growing, it is important to note that industry itself is playing a role in continuing professional education through employer-sponsored instruction (Lynton 1984, Nash and Hawthorne 1987). For the most part, these in-house educational programs have penetrated the domain of colleges and universities at the undergraduate level. There has not yet been a widespread industry movement to establish employer-sponsored degree programs at the graduate level. Among approximately 21 "corporate colleges" operating in the early 1980s, less than half offered graduate degree programs, one being the master's program in software engineering at the Wang Institute (Porter 1982). Apparently, the high cost of establishing a degree-granting corporate college and maintaining accreditation standards has deterred most companies from establishing such programs (Porter and McKibbin 1988, Wilcox 1987). It seems likely that business will continue to establish cooperative arrangements with colleges and universities in order to meet their needs for graduate degree programs.

2.5 Innovative Approaches to Graduate Program Delivery

The widespread adoption of "process" innovations, that is, innovations in course and program delivery that do not necessarily alter program content (Solmon 1984), is a salient trend in graduate education. Rooted primarily in developments in technology, these innovations accommodate working and place-bound students who find it difficult to enroll in traditional graduate programs (Conrad and Eagan 1990). There are two major and overlapping types of process innovations: new forms of instructional delivery and external degree programs.

Advances in technology have made possible a variety of innovations in methods of instructional delivery. An increasing number of graduate courses are transmitted in part or entirely via taped or live video, telephone networks, public radio, public and cable television, satellite television, and interactive computer. In some instances, entire programs are delivered off-campus through new technology.

Innovative delivery systems are most frequently found in professional fields at the master's level. Engineering has been a leader in using innovative technology for instruction (Dieter 1984), as shown by the rapid growth of the NTU, which not only offers master's degrees via satellite, but also emphasizes two-way audio and electronic mail as key components of its instructional delivery system (Fields 1987). The field of social work is also experimenting with new modes of instructional delivery. For example, the master's program in social work at the University of Wisconsin–Madison offers a "VCR Semester" in which students can earn graduate credits in social work courses that are broadcast over the Wisconsin public television network (Petracchi and Morgenbesser 1989). And both on- and off-campus, new instructional technologies are being used in graduate nursing education. Skaggs (1983) describes the interactive computer-video system in the school of nursing at the University of Texas-Austin, while Forni (1987) discusses the nursing program at Indiana University that uses telecommunication systems to deliver core courses, and the nursing program at the University of South Carolina that delivers master's courses through a talk-back television format to 27 statewide sites (see *Nursing Education; Distance Education at Postsecondary Level*).

Much of the innovation in instructional delivery is coupled with the rapid growth of program delivery alternatives, both on- and off-campus, which fall under the broad heading of external degrees. In brief, external degree programs are programs that do not require traditional patterns of residential graduate study. In addition to off-campus programs, they include programs delivered on-campus but in the evenings, on weekends, or in other nontraditional formats (Council of Graduate Schools 1975). At the graduate level, most of these are master's programs in professional fields that serve working practitioners enrolled on a part-time basis. While many external degree programs use one or more of the innovative approaches to instructional delivery discussed above, some programs rely exclusively on traditional approaches to instruction.

To illustrate the growth of external degree programs, it is instructive to examine the field of nursing. In her study of 105 nursing schools, Forni (1987) found that over one third offer nontraditional options in addition to their traditional programs, and fully one-fifth offer off-campus classes or outreach programs. At the University of Tennessee–Knoxville, for example, a master's program for technical nurses is offered at four outreach locations

via intensive weekend sessions, with clinical courses offered on-campus. External master's programs in nursing have also been described by Reilly (1980) and Kelley and Flowers (1985). The literature includes descriptions of external master's programs in such fields as computer science (Matchett 1980), elementary education (Broderius and Carder 1983), and social work (Wodarski et al. 1988).

Finally, it should be noted that a growing number of colleges and universities are establishing separate organizational units to oversee external degree programs. For example, the Institute of Personal and Career Development at Central Michigan University has centers throughout the country that offer graduate programs in such fields as management and community leadership (Doyle 1979). Many nontraditional institutions are organized around external degree formats that award both master's and doctoral degrees in popular fields such as business, counseling, health sciences, nutrition, and education (Stewart and Spille 1988). In short, external degree programs have become widespread both within and outside of traditional graduate education and, along with the various instructional innovations discussed above, have gone a long way toward remaking the curricular landscape of graduate education in the United States.

3. Conclusion

It would be unwise to assume that all the trends in graduate education (proliferation of new programs of study, continued high levels of enrollment with an increasing predominance of professional fields, expansion of the formal acceptance of experiential learning, growing cooperation between universities and the private sector, and innovative approaches to program delivery) that have been noted in the United States will appear elsewhere. By the same token, many of the technical and socioeconomic changes that stimulated these changes in the United States are worldwide in scope. Thus, while each country will respond to these changing conditions in terms of its own higher education traditions and socioeconomic conditions, variations on the trends seen in the United States can be expected worldwide due to the underlying similarities in the stimuli for change.

See also: Graduate Education: Comparative Perspectives; Industry and Higher Education; Business Schools: Europe; Business Schools: United States; Legal Education; Medical Education

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