The Milwaukee Symposium

Refining the Methodology for Comparing U.S. and Foreign Educational Credentials

1997

Milwaukee Symposium - June 19-22, 1996
In 1996, the CEC voting member organizations co-sponsored a symposium to review the process and procedures by which placement recommendations for holders of foreign credentials are developed. It was held at the Wyndham Center in Milwaukee, Wisconsin, USA.

The goal of the symposium was "to describe a methodological approach that can be used by individuals in the field to evaluate credentials and to determine their relevance in the context of institutional admission and placement policies." Prior to Milwaukee, U.S. credential evaluators and educators followed general templates based on known diplomas and degrees and sought to fit other credentials into these "equivalent" categories.

Ann Fletcher
Caroline Aldrich-Langen

This publication is the result of the Milwaukee Symposium held at the Wyndham Center in Milwaukee, Wisconsin from June 19 to 23, 1996.

Contents

I Introduction

II Considerations for Refining our Methodology

III Secondary Education and Transition to Higher Education

IV Undergraduate Programs and Transition to Graduate Education

V Graduate Programs

VI The Proposed Methodology

VII Institutional Self Analysis

Appendix A: Useful References

Appendix B: Milwaukee Symposium Participants

Published by Projects for International Education Research (PIER)
PIER is sponsored by
American Association of Collegiate Registrars and Admissions Officers
NAFSA: Association of International Educators
The College Board
The Milwaukee Symposium was funded by generous donations from the following organizations:

American Association of Collegiate Registrars and Admissions Officers (AACRAO)
Education Evaluators International, Inc.
Education International, Inc.
Educational Credential Evaluators, Inc.
Graduate Management Admission Council (GMAC)
Graduate Record Examination (GRE)
International Education Research Foundation, Inc.
Josef Silny and Associates, Inc.
Test of English as a Foreign Language (TOEFL)

USIA Field Service Grant, administered by NAFSA: Association of International Educators
World Education Services, Inc.

I

Introduction

U.S. high schools, colleges and universities enroll large numbers of students from throughout the world. Educational institutions in the United States establish their own admissions standards and programs of study. State governments mandate certain requirements for public institutions, but the federal government has little influence over academic policies and admission practices. There are no national government standards for assessing foreign educational credentials.

Guidelines for assessing foreign educational credentials have come primarily from placement recommendations developed by the National Council on the Evaluation of Foreign Educational Credentials (the Council) and published in publications of the World Education Series (WES) and Projects in International Education Research (PIER).

The Council is an interassociational group of representatives from the following national educational associations: American Association of Collegiate Registrars and Admissions Officers, American Association of Community Colleges, American Council on Education, the College Board, the Council of Graduate Schools, the Institute of International Education, and NAFSA: Association of International Educators. Observer organizations have included the United States Information Agency, the U.S. Agency for International Development, and the New York State Education Department.

Member organizations of the Council appoint representatives, usually for a period of three years, to represent them in Council deliberations. These representatives usually hold administrative appointments at colleges and universities, at education association headquarters, or at private credential evaluation services.

The role of the Council is to provide guidelines for interpreting foreign educational credentials for the placement of holders of these credentials in U.S. educational and other institutions. The Council reviews, modifies, and approves placement recommendations drafted by the authors of publications which are resources for the evaluation of foreign educational credentials for academic and professional purposes.

The Council also helps to establish priorities, guidelines and review procedures for international admissions publications.

The process that has produced Council placement recommendations, implemented in the 1950s, generally has served the U.S. admissions community well. However, the needs of admissions officers have changed, the backgrounds of applicants are more varied, and increased international mobility of students and scholars has focused attention on the quality and consistency of the credentials evaluation process, both in the United States and in other countries.

The Oregon Symposium was held in July 1989 to discuss issues and priorities for the production of information for the international admissions community in the United States in the context of constrained resources and new technologies. Recommendations from the Oregon Symposium led to improvements in the work of the Council and to the publication of NAFSA Working Paper #23: Guide to Placement Recommendations. This guide describes criteria used by the Council in reviewing educational credentials and includes interpretations of these recommendations.

Council representatives have attended a series of international meetings in recent years, primarily in Europe, that address methodology and procedures for assessing educational credentials across national boundaries. In 1996, U.S. representatives participated in discussions leading to a revised Convention on the Recognition of Qualifications Concerning Higher Education in the European Region of UNESCO, the region of which the United States is a part.

The increased visibility of the Council's work led to the conceptualization of the Milwaukee Symposium: Refining the Methodology for Comparing Foreign and U.S. Educational Credentials, which was held in June 1996. The original purpose of the Milwaukee Symposium was to articulate a methodology that would be used by the Council to evaluate foreign educational credentials. The goals were to provide transparency in the process used to evaluate credentials, to promote greater consistency in the evaluation of similar credentials over time, and to consider ways in which recommendations could provide more information to users.

The goals of the symposium were developed with three audiences in mind:

users of Council recommendations in the United States who need to better understand how placement recommendations are developed, how they should be interpreted in the context of an institution's policies, and how admission and placement decisions can be explained to students, faculty, and administrators authors of publications for the U.S. admissions and international exchange community.

colleagues in other countries who are involved in the exchange of students and scholars, which may involve advising students on study in the United States, admitting U.S. students to institutions in their countries, or evaluating educational credentials from other countries for placement in academic institutions or for professional purposes.

However, a broader goal for the symposium developed: to describe a methodological approach that can be used by individuals in the field to evaluate credentials and to determine their relevance in the context of institutional admission and placement policies. One symposium participant wrote the following: "It is my hope that the symposium can provide a system (methodology) that a credential evaluator, when confronted with an unusual credential that is not addressed in easily obtainable resources, can go through and feel confident that she/he used a valid decision-making framework. Can we address the needs of a range of credential evaluation skills, abilities, and resources? Can we develop guidelines that could be used by an evaluator with limitations as well as one with richer resources? Can we come up with a document that can really be used by those in the field?

Twenty-five specialists in the field of international education and credential analysis met in Milwaukee for three days to review specific features of U.S. upper secondary, undergraduate, and graduate education, with particular attention to the transition from one level to another. Participants culled the critical factors which signify minimal benchmarks of U.S. higher education as well as the content of academic preparation required by different types of institutions and programs. This review of the U.S. system and culling of critical factors may provide us with clues for use when comparing a foreign credential with a particular U.S. level of education and program of study. Participants brought to these wide-ranging discussions their perspectives from private and public two-year, four-year, and graduate level institutions from throughout the United States.

Animated discussions led to a unanimous conclusion: the work of this symposium is an evolving process; much more remains to be done. The methodology described in this report will continue to be tested and revised. Accordingly, this report is one in a series of publications on the refinement of a methodology and implementation of new recommendation formats.

II

Considerations for Refining Our Methodology

The symposium was structured to discuss upper secondary and tertiary education in the United States: benchmarks for the completion of each stage of education, profiles of the range of programs at each level, and transitions between levels of education. In the context of the structure of the U.S. educational system, the refined methodology looks at the content and purpose of programs of study and at how students prepare for and are admitted to more advanced levels.

Standardized tests, recommendations, and student performance are important admissions considerations. However, the primary factor discussed in this report is the content of academic programs; the depth, breadth, and rigor of study programs that prepares students for future academic opportunities.

This perspective provides improved insights into the comparability of programs and their functions across systems; into similarities among upper secondary programs, undergraduate degree programs, and graduate study. The level of analysis is less about structure and length of program segments and more about content and purpose.

Structural Analysis

Traditional approaches to the evaluation of foreign educational credentials rely primarily on the following structural considerations that have been the basis for the Council's development of Council placement recommendations.

- structure of the educational system of which the program is a part (education ladder)
- entrance requirements
- number of years of education required to complete the program
- opportunities for further education or professional employment provided by the credential in the home country

Since the early 1980's, much of this information has been included in the format of placement recommendations.

Structural analysis is the first step in establishing comparability of credentials. But structural analysis sometimes leads to overemphasis on the number of years required to complete an academic program and provides little information on the content and purpose of a course of study.

Benchmark U.S. Educational Credentials

American high schools, colleges and universities offer a multiplicity of programs that lead to the generic, benchmark credentials of high school diploma, bachelor's degree, master's degree, and doctoral degree. Unlike credentials from educational systems in many countries, U.S. credentials certify the level of education completed but rarely the type of program followed. A U.S. high school diploma represents completion of minimum requirements as specified by the school awarding the credential. It can also be awarded for completion of a rigorous, college preparatory program which includes post-secondary course work or for completion of a basic requirements for graduation. In other countries, a variety of secondary school credentials are awarded for different types of programs.

Evaluations that compare "the U.S. high school diploma" with a secondary school leaving certificate giving access to university education in the home country will necessarily fail to reflect adequately the range of preparation required for transition to higher education options in the United States.

Benchmark credentials represent completion of a level of study and generally provide

access to the next level of education. A U.S. high school diploma provides access to open admission colleges. However, other higher education institutions specify additional requirements related to the content of high school courses and the type of preparation required to compete for admission.

Benchmarks are important concepts for establishing basic levels of education across educational systems and within educational systems. Benchmarks represent assumptions about minimum standards for completion of a level of study.

Functional Analysis

The purpose of a program of study and the future opportunities afforded its graduates are fundamental elements in comparing educational credentials from different systems. Credentials should be evaluated in the context of the level of preparation of students, the education and training aims of the program of study, and the type of institution in which the program is offered.

Courses in curricula are designed according to the outcome for which students are trained. Syllabi should not be compared at face value, but rather in the teaching context in which courses are offered. Similarities of courses and programs should be identified according to what curricula are designed to accomplish; to the preparation provided to students for subsequent educational programs and/or professional opportunities.

For example, a high school English course taught in a university-preparatory track differs in the content, delivery of material, and expectations for student performance from a course taught for students not preparing for university. A high school chemistry course designed for students preparing for a technical profession is fundamentally different than a course preparing for admission to a selective university. An undergraduate economics course is taught differently, with different student expectations, than a course on the same topic offered in an MBA program.

There is considerable consistency internationally in how curricula are designed and the progression in which subjects are presented, from elementary, introductory material to applied specializations and the introduction to research, analysis, and discovery. By understanding how teachers and faculty members design programs and requirements, evaluators move from abstract discussions of comparability of degrees to discussions of comparability of preparation and the composition of degree programs.

Whether in secondary or higher education institutions, departments develop curricula that present knowledge in a progression, from basic to advanced, from delivery of facts to expectations of independent work. Curricula are developed to present a knowledge base logically and sequentially, and to prepare students for further education or for occupational opportunities. To a large extent, the preparation of students is represented by the curricula they have completed, by the sophistication of the work to which they have been exposed, and by the standards by which they have been evaluated.

Institutional Contexts

The curriculum of an institution represents the philosophy and educational aims of that institution. Key factors are student characteristics, institution characteristics, types of intended learning outcomes, and conceptions of service and excellence. However, institutional contexts are frequently more informative considerations abroad than in the United States. In many countries, different types of programs are offered by different types of institutions. For example, university preparatory programs are offered in secondary schools which offer only these programs. Similarly, at the university level, all students completing a physics degree program in a national university system have completed the same program of study, with only minor variations.

But in the United States, comprehensive secondary schools offer a full range of options, and even students following a university preparatory program will have very different transcripts ranging from completion of the basic requirements for admissions consideration by moderately selective universities to very rigorous programs that include Advanced Placement (AP) and honors courses. A bachelor's degree in economics at a particular university can be awarded for minimal completion of requirements as well as for completion of a program that includes many more courses in the major and supporting fields, upper division seminar work, independent study, and a thesis. How students take advantage of the educational opportunities afforded by their college or university can be more significant than the institution they attend. Thus the profiles in the undergraduate education chapter are based not on selectivity of the institution but on the rigor of programs, by major and within a major.

Transitions and Admissions Considerations

Symposium participants described ranges of programs at each level of education according to what curricula are designed to accomplish and what students prepare to do beyond completion of the program. For example, high school programs range from completion of state or locally specified minimum requirements for graduation to rigorous university-preparatory programs that include course work at the post-secondary level. The delineation of categories of programs, or program profiles, provides a basis for comparison with foreign credentials that more accurately reflects U.S. admission and placement considerations, specifically the content of preparation required for transition to another program of study.

U.S. students generally have many choices in selection of courses. They make these choices based on personal interest, commitment to academic rigor, and to prepare for subsequent academic and professional opportunities. U.S. high school diplomas and bachelor's degrees represent completion of a very broad range of programs and great differences within programs, given variations between completion of minimum requirements versus preparation for subsequent admission to the most selective programs.

The discussions and profiles presented in this report serve as the basis for looking at foreign academic credentials from the following perspective: what kind of secondary preparation in the U.S. is most similar to that represented by a particular foreign secondary credential, and for what type of post-secondary program would the student be qualified. The level at which an academic program is offered determines the anterior requirements for admission, the access afforded its graduates determines its purpose, and both of these factors influence the program's content. With these considerations in mind, evaluators can more easily determine the content of a course taken by the student than solely by a detailed assessment of the syllabus.

Moving Toward a Refined Methodology

The evaluation of credentials from other countries is performed most accurately and effectively when the admissions criteria for U.S. students competing for the same program are clearly understood and when admissions officers and evaluators can articulate the nature of the preparation expected of students applying for that program. Admissions officers must be able to compare different types of academic preparation, find commonalties and deficiencies, and present these comparisons logically and in ways that address the academic realities of departments and programs.

In their work in Milwaukee, symposium participants focused on the U.S. educational system, culling factors used to guide admissions decisions at each level of higher education. The first stage in this process was to identify the factors that determine benchmarks in the U.S. educational system, the U.S. high school diploma, the bachelor's degree, etc.

The second stage was to discuss academic preparation, its structure and function related to the next level of education or preparation for employment, which participants considered to be the single most important factor in comparative analysis for placement in U.S. institutions. Chapters III, IV, and V examine programmatic features of secondary, undergraduate, and graduate education. Chapter VI and VII present new frameworks in which Council members and credentials evaluators can compare foreign academic programs with admissions expectations at individual institutions. We suggest that it is possible to develop placement recommendations to describe benchmark comparisons as well as recommendations that describe different types of preparation.

The approaches suggested in this publication depend on generic models, which may not serve every institution. Therefore, in the assessment process, when faced with conflicting factors or questionable fit of preparation to the proposed program of study, the refined methodology calls for consideration of "compensatory factors." These factors might include breadth or depth of preparation, intensity of a course of study, or selectivity of admission practices. The decision as to whether compensatory factors offset other criteria is further based on an assessment of issues within the context of institutional admissions policies and practices.

III

Secondary Education and Transition to Higher Education

Elementary and secondary education in the United States is comprised of grades 1-12. It is universal, free, and compulsory, although the number of years of compulsory education varies by state.

Patterns of education also vary, but two systems are the most common:

- primary school grades 1-6
- junior high school grades 7-9
- high school grades 10-12

- primary school grades 1-5
- middle school grades 6-8
- high school grades 9-12

No matter which pattern of education is followed, the last four years of the twelve year sequence are generally referred to as "high school," and this pattern is used throughout this chapter.

Most public high schools in the United States are comprehensive and offer a range of programs within one institution, including honors, university preparatory, and general academic, as well as specialized study in commercial, trade, and technical fields. Students go to the school in the district in which they live. In some communities, almost all of the students in a comprehensive public high school enroll in a university-preparatory program. In other communities, many of the students are not preparing for higher education.

Some urban school systems have specialized high schools and students select a high school based on the program of study they wish to pursue. The Milwaukee Public Schools system is a prime example. Specializations at individual schools include applied technology, arts, business, communications and media, computer data processing, electronics, law and protective services, medical and health care specialties, and university preparatory courses.

Other districts have schools that specialize in general university preparation, programs for the gifted and talented, fine arts, performing arts, sciences, and vocational/technical schools preparing for skilled trades.

The minimum requirements for graduation from high school are relatively standard throughout the country. Table 1 provides the minimum requirements for a high school diploma at several schools (based on 4 years of high school).

One unit represents a course taken each day (or the equivalent amount of time) for an entire year, usually 36 or more weeks, 180 or more school days. A typical year begins in early September and ends in mid-June with four weeks of vacation during the year.

The "benchmark" for completion of high school is represented by a diploma awarded for the minimum high school curriculum. The public comprehensive and public urban school minimum requirements listed in Table 1 are examples of benchmark completion of high school. (Model A high school diploma. Reference is made throughout this chapter to generic models of high school programs. These are detailed later in Chapter VI.) Students who have completed this type of high school program have access to community colleges with open admission standards and to some other nonselective institutions. However, completion of the minimum requirements for high school graduation does not qualify students for most colleges and universities in the United States. The private college preparatory minimum requirements listed in Table 1, which includes more demanding course content than in the other two examples, are designed to prepare students for admission to postsecondary, selective institutions. (Model C high school diploma)

Table 1
Minimum Requirements for High School Graduation

	Public Comprehensive	Public Urban	Private College Preparatory
English	3.5	4	4
Mathematics	2 (1 yr alg)	2 (1 yr alg)	3 (2 yrs alg)
Science	2	2	3
Social studies	4	3	3.5
Arts	1	1	1
Living skills	0.5	0.5	0.5
Physical education	2	1.5	---
Career vocational	1	---	---
Religion	---	---	3
Total required units (including electives)	21	21	22

The U.S. high school diploma is a very general concept. It can represent completion of basic requirements or, at the other end of the spectrum, completion of university-level courses in the Advanced Placement or International Baccalaureate curricula. When comparing foreign secondary school credentials to U.S. programs, the analysis is most productive when the nature of the program followed abroad is compared to similar programs here. Does the foreign program provide access to university (academic) study in that country or is access to higher education more restricted? Are students preparing for employment directly after high school or for admission to a post-secondary institution?

U.S. secondary schools are generally more flexible than schools in other countries in that students have more opportunities to select courses and change their post-

secondary goals than in many countries where students are tracked into academic, technical, and vocational programs as early as the eighth year of schooling. In reality, students in U.S. schools also track into different types of programs at a similar stage, based on aptitude and interest. In seventh and eighth grade, students begin to select a rigorous, moderate, or remedial course of study. In urban systems with specialized schools, students at this stage must also select which school they will attend based on their choice of program and post-secondary objectives.

Mathematical ability is often the basis for tracking U.S. high school students. The mathematics options at one public high school is indicative of the range of mathematics preparation of U.S. high school graduates. At our sample school, two years of mathematics are required, including one year of algebra. The weakest course sequence consists of a year of basic mathematics usually covered in middle school followed by one year of algebra. Only the algebra course is considered as a university preparatory course.

The most advanced mathematics sequence includes the following:
Grade 9: Geometry/Algebra 2 Advanced - inferential logic, geometry, and advanced algebra
Grade 10: Trigonometry/Analytic Honors - analytic trigonometry and geometry
Grade 11: Analysis Honors - graphical relationships and limits, probability, functions and limit, vectors and analytical geometry, discrete mathematics
Grade 12: BC Calculus Advanced Placement - functions and limits; derivatives of algebraicfunctions; the definite and indefinite integral; differentiation of exponential, logarithmic, trigonometric and inverse trigonometric functions; simple differential equations, vectors and applications

Ninety percent of the graduates of this high school go on to higher education. However, students who are not preparing for higher education may receive up to 2 credits per year in their junior and senior years in off-campus apprenticeship courses in such areas as automotive technology, business, cosmetology, and dental/health career occupations. (Model B high school diploma)

Other examples of Model B high school diploma programs are offered by an urban public high school system which offers programs in manufacturing and construction technology. In grades 11 and 12, students combine course work with apprenticeship programs that prepare them for employment and admission to technical schools.

Preparing for Higher Education

Students in the United States begin to prepare for the college admission process as early as middle school. Courses taken in high school are selected to meet university admission specifications for prerequisite courses but the rigor of these courses also determines performance on standardized tests and teacher recommendations.

The three sectors of public higher education in California are illustrative of the range of

U.S. admissions practices as well as of the distinction between publicized entrance requirements and the programs students actually follow to gain admission. The sectors are community colleges which offer two-year associate degree programs, California State Universities which teach through the master's level, and University of California institutions which are the most selective and are research and teaching institutions offering bachelor's, master's, doctoral and professional degrees.

The extensive California community college system offers programs in vocational fields as well as academic courses leading to admission to four year schools at an advanced level (usually into the third year). Community colleges are "open-door;" they are nonselective and require completion of high school for admission. (Alternatives are available for adult students.)

The following sample high school program (Model A) does not represent university preparation, but the student would qualify for admission to a community college (or other nonselective institutions) on the basis of the high school diploma. Courses include remedial work in mathematics in grades 9 and 10 and very few university preparatory subjects. (For example, the English and history courses are less rigorous than university-preparatory courses.)

Grade 9	**Grade 10**	**Grade 11**	**Grade 12**
Basic agriculture, 1	Decision making, 0.5	Algebra 1, 1	Art, 1
Beginning computers, 0.5	General science, 1	Art, 1	Economics, 0.5
English 9, 1	English 10, 1	Biology, 1	English 12, 1
General business, 1	Home economics, 0.5	English 11, 1	Geometry, 1
Physical education, 1	Mathematics, 1	History, 1	U.S. government, 0.5
Pre-algebra, 1	Physical education, 1	Photo/yearbook, 0.5	Work experience, 1
Spanish 1, 1	School service, 0.5	Professional skills, 0.5	
World geography, 0.5	Spanish 2, 1	School service, 1	
	World history, 0.5		

The California State Universities (Model C) require the following courses in preparation for admission, the content of which must meet specifications for university preparatory courses:

- Arts, 1 year
- English, 4 years
- Foreign language, 2 years of same language
- Mathematics, 3 years (through algebra 2/trigonometry)
- Science, 1 year (lab)

- U.S. history, 1 year
- Electives*, 3 years

* advanced math, English, history, lab science, visual or performing arts, and other fields

The following high school program meets the minimum course requirements for admission to one of the California State Universities, but is not a strong university preparatory program. (In this example, the "honors" designation is used for university preparatory courses.)

Grade 9	**Grade 10**	**Grade 11**	**Grade 12**
German, 1	Advanced algebra/trig, 1	Computers/typing, 0.5	American government, 0.5
Health, 0.5	Drawing/design, 0.5	German 2, 1	Automobiles 1, 0.5
Honors English 9, 1	Honors chemistry, 1	Honors biology, 1	Computer technology, 1
Honors geometry, 1	Honors English 10, 1	Honors English 11, 1	Economics, 0.5
Honors physical science, 1	Honors world history, 1	Honors U.S. history, 1	English 12, 1
Physical education, 1	Physical education, 1	Intro to automobiles, 0.5	Foods, 0.5
Study skills, 0.5		Office skills, 0.5	Photography, 1
		Pre-calculus, 1	

The University of California system has the following minimum course requirements for admission. All courses must meet specifications for university preparatory courses.

- English, 4 years
- Foreign language, 2 years of same language
- History/government, 1 year
- Lab science, 2 years
- Mathematics, 3 years (through algebra 2/trigonometry)
- World history, 1 year
- Electives*, 2 years

* advanced mathematics, English, history, lab science, social science, visual and performing arts, 3rd year of a foreign language

Although the minimum requirements for admission to California State Universities and University of California institutions are very similar, more rigorous preparation is required to compete successfully for the highly selective University of California schools. For admission to a University of California campus, most successful applicants take four years of university preparatory courses in foreign language, history/social science, mathematics, and science. (Model D high school diploma program)

Admissions material from the University of California at Santa Cruz gives the following advice: "The more comprehensive and challenging your high school program is, the better prepared you will be for University work. The University urges prospective students to take particular care in planning the senior year program. Your senior year should be used to prepare you for your first year at the University and should include honors and advanced courses as well as courses that will strengthen your overall preparation. A challenging senior year program, successfully completed, is a natural bridge between high school and University course work in your intended major. "

The following record is from a public high school with a very strong college placement record; the student was admitted to a University of California campus and to very selective private universities. The program includes honors university preparatory and Advanced Placement courses. (Model D)

Grade 9	**Grade 10**	**Grade 11**	**Grade 12**
Biology honors, 1	Chemistry honors, 1	Analysis, 1	Art history, 1
French 1, 1	French 2, 1	Biology (AP), 1	Calculus (BC AP), 1
Geometry/algebra honors, 1	Literary style honors, 1	College prep English, 0.5	Economics, 0.5
World culture honors, 1	Physical education/sports, 1	Creative writing honors, 0.5	English (AP), 1
World history honors, 1	Photography 1, 1	French 3, 1	French 4, 1
Theater, 1	Trigonometry, 1	Photography 2, 1	Physics (AP), 1
Physical education/sports, 1	U.S. government honors, 1	U.S. history honors, 1	Psychology, 0.5

Many students in the United States take university level courses before graduating from high school, usually through the Advanced Placement or International Baccalaureate program or by taking courses at community colleges or universities while still in high school. Students pursue such programs to present rigorous records for competitive admissions processes and to obtain advanced placement and/or transfer credit once enrolled at a college or university.

IV

Undergraduate Programs and Transition to Graduate Education

Most bachelor's degree programs are designed to be taken over a four-year period. The actual amount of time needed to complete degree requirements may be shortened by advanced placement credit and heavy course loads or lengthened by slow progress, scheduling difficulties, or because some programs have additional program requirements.

University requirements are measured by units or credits. One semester credit is defined as one 50-minute period of classroom instruction over a 15-week semester, totaling 750 minutes per semester. For each period spent in the classroom, students are generally expected to spend at least two hours of preparation. Full-time students typically take 15 credits per semester, resulting in at least 45 hours of classroom and preparation time per week. Quarter credits are received for work completed over a 10 week term. Examination periods are usually in addition to the 15 week semester and 10 week quarter. Minimum requirements for the bachelor's degree are usually 120-125 semester units or 180-192 quarter units.

Much college instruction, particularly in the first two years, occurs in lecture form. To ensure that the material is understood, to allow for questions, and to measure the progress of individuals, large lecture classes are frequently divided into discussion groups of 15 to 30 students. Each section, led by a faculty member or graduate student, meets once or twice each week in addition to the lecture portion of the course. Science programs usually include lecture and laboratory courses, beginning at the introductory level of a university curriculum.

Undergraduate courses also include seminars, colloquia, workshops, internships, field experiences, and independent study.

The development of undergraduate curricula includes content, sequence, and process; the progression of a student through a discipline, from introductory courses in the major and related fields to increasingly advanced and specialized courses as well as assignments based on increasingly sophisticated expectations for independent work, analysis, and research.

U.S. undergraduate programs include three components: general education requirements, major requirements, and electives. The distribution of courses in these areas depends on the major and the degree a student is pursuing. The first two years of most bachelor's degree programs are devoted primarily to general education courses to meet institutional requirements and to courses preparing for the major. In the second two years, students take advanced courses in their major and elective courses that may be unrelated to the major or may supplement major requirements.

The first two years of an undergraduate program may be completed at a community or junior college which awards the associate degree. The first two years at a university or four year college are often referred to as lower division work. Many institutions,

especially those with open admission programs, provide remedial or developmental courses, sometimes for college credit, in basic subjects such as composition, reading and mathematics. These remedial courses may extend the length of the baccalaureate program.

The undergraduate curriculum of an institution reflects, to a large extent, the philosophy, traditions, and educational aims of that institution. It also is determined by student and faculty characteristics, institutional characteristics, and anticipated learning outcomes.

General Education

Each institution specifies its own general education requirements for graduation. (General education requirements may also be called distribution or breadth requirements.) These requirements also may vary by school within a university and/or by degree program. General education is the breadth component of the undergraduate curriculum. These requirements may include university-level courses in English composition, foreign languages, humanities, mathematics, sciences and social sciences. General education requirements can include specific courses taken by all students, courses taken from a prescribed list, and courses selected from throughout the university in specified fields.

At University A, the general education and other semester unit requirements for the B.A. and B.S. degrees are as follows: English Composition and Mathematics (exams or courses); 6 units of advanced courses in logic, math, statistics or language; 12 units each in humanities, social sciences, and sciences; and 3 units each in arts and cultural diversity.

University B requires 10 semester courses selected from a list of courses in societal issues, history and tradition, arts and letters, formal reasoning, living world, and physical world.

University C requires 2 required contemporary civilization courses and 4 required humanities courses plus three additional courses in science.

University D has a foreign language requirement (a year of college level work at an advanced level), a writing requirement, a one year humanities sequence and 4 additional courses selected from the humanities, social sciences, science, math, and technology.

The Major

Students begin taking prerequisite and beginning courses in a field of study, and by the end of the second year, they are expected to have selected a major in a particular field. Major requirements specify the completion of a relatively focused, integrated body of knowledge by taking courses in one field or, more commonly, in two or more related fields. Majors may be based in a department (political science) or may be

interdisciplinary, involving courses from a number of departments (international relations). Students may complete a single major, double major (two full majors), double degree (Bachelor of Arts, Bachelor of Science), or a major and a minor.

Major requirements are determined by departments or by interdepartmental committees which specify the number and nature of courses and other requirements. Major requirements generally include required introductory courses in the major and in related fields followed by more advanced, required courses and electives in an area of specialization within the major. A major is a coherent program that progresses from introductory to advanced study in a discipline. Program requirements specify required courses as well as electives chosen for breadth and specialization within the major.

The description of the requirements for a major in economics illustrates how majors build from prerequisites to advanced study and specialization. Pre-major requirements include the following prescribed (core) courses: 4 introductory economics courses, 2 mathematics courses, and one English course. The major requirements, taken in the last two years, include 2 core upper division economics courses and 7 elective courses chosen from at least 3 fields of economics.

The description of university and major requirements for a degree in physics, as presented in a university advising document, helps students plan a four year program of study that includes sequencing of courses in mathematics and sciences related to the major as well as general education requirements.

Year 1
33 units - physics, mathematics, computer science
21 units - general education requirements

Year 2
36 units - physics, mathematics
3 units - general education
14 units - non-science electives
Year 3
40 units - physics, mathematics
8 units - non-science electives

Year 4
43 units - physics, mathematics
3 units - non-science elective

Total: 202 quarter units (134 semester units)

Generally, institutions specify minor variations, if any, in the overall unit requirements for bachelor's degrees. However, majors vary greatly, even within the same institution, in terms of the rigor and prescriptive nature of their requirements. A low unit major has relatively few course requirements; thus students may take a number of elective

courses to meet the overall university requirements for the degree. Students in a high unit major may take very few or no courses outside of their general education and major requirements.

The following examples of different types of majors, taken from a university advising guide, illustrates the distribution of units in three of its 60 majors as follows:

Psychology - a low unit major; 124 total units required for the B.A. degree (Model A bachelor's degree program)

30 units for major
45 units for general education
6 units American history and government
43 elective units

Psychology majors often complete a second major, a minor, or internships, and/or additional courses in psychology if they wish to go on in graduate school.

Business Administration, marketing option - medium sized major; 128 total units required for the B.S. degree (Model B bachelor's degree program)

72 units for the major
39 units for general education
6 units in American history and government
11 elective units

Mechanical Engineering - a high unit major; 132 total units for the B.S. degree (Model B bachelor's degree program)

108 units for the major
24 additional for general education

The university's American history and government requirement is included in the general education units; there are no electives.

In general, the requirements for career-oriented majors are more prescriptive and require more courses than majors in the liberal arts. Major requirements in professional fields often must conform to regulations of external professional accreditation bodies, such as the Accreditation Board for Engineering and Technology (ABET) for engineering degrees.

There is also tremendous variation in the number of courses taken in a major by individual students, depending on personal choice and preparation for graduate study. The following descriptions of programs completed by economics majors at one university illustrate minimal versus rigorous programs followed by students who obtained the same degree and major.

(Units below are quarter units. 180 units are required for the bachelor's degree.)

Student A graduated in four years, with a total of 181 quarter units distributed as follows:

70 units - distribution requirements
60 units - economics (minimum required for the major)
51 units - electives, including 10 in sports

Student A is not preparing for further work in economics; his program in the major, comprised primarily of lower level courses, is not rigorous. (Model A bachelor's degree program)

Student B graduated in three years, taking 17 units per quarter, and completing 180 units:

26 units - Advanced Placement
51 units - distribution requirements
60 units - economics
43 units - electives (27 in communication)

Student B's program is much stronger than that of Student A because he took higher level courses in the major, completed an honors thesis, and did advanced work in a related field. (Model C bachelor's degree program)

A comparison of the transcripts of two majors in English illustrates different approaches to academic planning. Student C took the minimum courses needed for the major (45 quarter units). Student D took 89 units in the English department and many of his 40 elective units were in related fields; he is much more prepared for graduate study in English than Student C.

Advanced Placement and Transfer Credit

American colleges and universities award credit to be used to meet degree requirements for university-level work done prior to graduation from high school and for courses completed at other higher education institutions.

Students may receive Advanced Placement (AP) credit for completion of College Board Advanced Placement (AP) examinations which are widely recognized as representing college-level preparation. (Many institutions also award advanced placement credit for the International Baccalaureate and foreign secondary leaving examinations.) Advanced placement policies vary by institution and by discipline.

For example, a selective private university accepts up to 45 quarter hours of advanced placement credit, representing 25% of the units required to receive the bachelor's

degree. Each College Board AP examination may yield from 5 to 10 units. In a student's bachelor's degree program, advanced placement units reduce the total number of units required for the bachelor's degree, and are included in general electives, but they may not be used to meet general education or major requirements. However, performance on some AP exams is used to determine placement in sequential courses. A student with a grade of 4 or 5 (of 5) on an AP examination in French or Spanish may take third year university language courses; AP Math examination results are used to determine placement in university calculus courses. At other institutions, AP units may be used to meet general education and major requirements.

Transfer credit practices facilitate the mobility of students who attend more than one institution in pursuit of a degree. The following excerpts are from a 1978 statement on transfer credit endorsed by the American Association of Collegiate Registrars and Admissions Officers, the American Council on Education/Commission on Educational Credit, and the Council on Postsecondary Accreditation and it still serves as the basis for inter-institutional transfer credit practices in the United States.

"Basic to this statement is the principle that each institution is responsible for determining its own policies and practices with regard to the transfer and award of credit. Institutions are encouraged to review their policies and practices periodically to assure that they accomplish the institution's objectives and that they function in a manner that is fair and equitable to students."

"Transfer of credit is a concept that now involves transfer between dissimilar institutions and curricula and recognition of extra-institutional learning, as well as transfer between institutions and curricula of similar characteristics. As their personal circumstances and educational objectives change, students seek to have their learning, wherever and however attained, recognized by institutions where they enroll for further study. It is important for reasons of social equity and educational effectiveness, as well as the wise use of resources, for all institutions to develop reasonable and definitive policies and procedures for acceptance of transfer credit. Such policies and procedures should provide maximum consideration for the individual student who has changed institutions or objectives. It is the receiving institution's responsibility to provide reasonable and definitive policies and procedures for determining a student's knowledge in required subject areas. All institutions have a responsibility to furnish transcripts and other documents necessary for a receiving institution to judge the quality and quantity of the work. Institutions also have a responsibility to advise the students that the work reflected on the transcript may or may not be accepted by a receiving institution.

"Inter-institutional Transfer of Credit

"Transfer of credit from one institution to another involves at least three considerations:

- The educational quality of the institution from which the student transfers.
- The comparability of the nature, content, and level of credit earned to that offered by the receiving institution, and

- The appropriateness and applicability of the credit earned to the programs offered by the receiving institution, in light of the student's educational goals."

This statement and the publication in which it appears, Transfer Credit Practices of Designated Educational Institutions - An Information Exchange, provides the context in which institutions can implement reasonable policies regarding transferability of credit.

The transfer credit a student receives will generally reduce overall unit requirements for a degree. Some of the credit transferred, but often not all of it, may be applied to meet degree requirements at the receiving institution. Universities may choose not to accept transfer courses to meet core requirements and departments may also not accept courses taken elsewhere to meet certain major requirements. The Transfer Credit Practices statement also addresses this issue:

"At some institutions there may be differences between the acceptance of credit for admission purposes and the applicability of credit for degree purposes. A receiving institution may accept previous work, place a credit value on it, and enter it on the transcript. However, that previous work, because of its nature and not its inherent quality, may be determined to have no applicability to a specific degree to be pursued by the student.

"Institutions have the responsibility to make this distinction, and its implications, clear to students before they decide to enroll. This should be a matter of full disclosure, with the best interests of the student in mind. Institutions also would make every reasonable effort to reduce the gap between credits accepted and credit applied toward an educational credential."

The impact of the latter portion of this statement is mitigated by institution-wide and departmental curricular objectives that specify the completion of certain academic courses and requirements at the institution awarding the degree, based on that institution's faculty view of the body of knowledge which should be possessed by their graduates.

A common transfer point for students in the United States is from two-year institutions to four-year bachelor's degree programs. State systems generally develop articulation agreements that provide guarantees for transfer of credit. For example, even though general education requirements differ among the campuses within the California State University System, the completion of general education requirements at one institution is accepted by another institution. However, transfer credit is evaluated by receiving institutions on a course-by-course basis for purposes other than determining satisfaction of general education requirements.

The following are examples of institutional policies regarding transfer credit:

- Ninety of 120 required credits must be earned in courses offered by the receiving institution.
- Credit earned at regionally accredited colleges and universities is acceptable for transfer except that courses determined to be of a developmental, vocational, or

technical nature may not be accepted, or may be accepted to a limited extent. No more than 65 semester credits earned at two-year colleges can be applied to a bachelor's degree. While there is no limit to the number of credits that may be transferred from a four-year institution, the last 32 semester credits must be completed at the institution awarding the degree.

- Thirty units must be completed in residence at the campus awarding the degree including 24 of the 40 required upper division units, and 12 units in the major.
- No more than 90 quarter units of transfer credit can be counted toward degree requirements. Transfer credit is awarded only for courses that are substantially equivalent to those offered by the receiving institution.

V

Graduate Programs

Admission to Graduate Study

Admission to undergraduate programs in the United States is generally centralized in one office for all programs, or in one office within a school offering a number of majors. Less commonly, students apply for admission to a particular area of specialization.

Graduate admission is fundamentally decentralized, regardless of administrative organization. Quoting from the Council of Graduate Schools publication, An Essential Guide to Graduate Admissions, "Graduate admissions policies follow a Federalist model: the graduate school defines the baseline academic admission standards and may set goals for the desired general population mix of the graduate student body, while the individual programs may refine and strengthen these requirements to assure the entry of students who demonstrate the promise of completing their chosen educational programs successfully, and, indeed, with distinction."

The baseline academic admissions standard specified by graduate schools in the United States is that applicants must have completed a bachelor's degree from a regionally accredited institution in the United States (or comparable foreign program and institution) prior to enrollment. Completion of an undergraduate program is the basic requirement for admission to a graduate program; an applicant who has completed 130 semester units but has not received a bachelor's degree (requiring 120 units) would generally not be considered for admission. Graduate schools occasionally admit students who do not have a bachelor's degree. These actions are done on an exceptional basis or within prescribed guidelines, for example joint bachelor's/master's programs and special admission procedures for M.D. programs.

Graduate schools use the bachelor's degree requirement to set a baseline of eligibility to apply for admission to graduate programs. Graduate education, as defined by the Council of Graduate Schools, is advanced, focused, and scholarly. It is assumed that graduate students have acquired fundamental knowledge in prior studies and are prepared to pursue a specific discipline or field of study, in depth and at an advanced level.

The appropriate program preparation for admission to a graduate program is determined by each school and department. Depending on the type of graduate program, admission may require substantial undergraduate preparation in the major field or no particular undergraduate preparation.

Practice-oriented or professional master's and doctoral programs prepare students for careers directed mainly toward the application or transmission of existing knowledge. The thrust of the coursework is to build an advanced level of expertise in a professional field. Although many professional degree programs do not require a particular undergraduate major, the level of instruction is at an advanced level in terms of pedagogy and expectations for student performance. The criteria for admission to professional degree programs in business, medicine, and education may include preparation in particular courses, but admissions decisions are based primarily on other factors, such as test score results, professional experience, and letters of recommendation.

Academic master's programs and Ph.D. programs are designed to prepare students for scholarly or research activity directed toward the acquisition of new knowledge; for admission, they generally require an undergraduate major in the same or closely related field. In addition, admissions committees may look for undergraduate research experience and other indicators of potential to perform well in a graduate level research program.

Departments may offer both types of programs. For example, many communication departments offer a master's program in film production as well as master's and doctoral programs in communications research. Film programs have fewer requirements for specific academic preparation than research-oriented programs. Computer science departments offer master's programs with an applied focus to prepare graduates for advanced engineering positions; they may also offer master's and doctoral programs designed to prepare students to do basic research.

The policy on whether students with a bachelor's degree are admitted initially for study toward the master's degree or toward the Ph.D. degree is primarily a departmental decision. Departments determine policies on whether they admit students to study only for a terminal master's degree, for the master's degree with the option to continue in a Ph.D. program, or directly to doctoral study. Few generalizations can be made, however programs at research universities that emphasize doctoral study most frequently admit students directly to doctoral study; they may not offer a master's program or the master's degree is not considered as a first step toward doctoral study. Direct admission to doctoral programs is most common in the humanities, sciences, and social sciences. Engineering departments generally admit students initially to master's programs, which are the first stage of doctoral study.

Advanced standing and transfer credit are complex factors at the graduate level. Many universities award no graduate transfer credit. Universities that do award graduate

transfer credit rarely do so for master's programs, although occasionally the overall number of units required for the degree may be reduced based on graduate courses taken elsewhere.

Students with a U.S. master's degree may be admitted to doctoral programs that require completion of the master's degree first. Students who are admitted to doctoral programs that admit bachelor's degree holders directly for Ph.D. study may receive a waiver of first and second year courses on the basis of graduate work completed previously, their residency requirements may be reduced, or they may be required to take first and second year core courses regardless of previous work completed. In any case, doctoral programs require all students to complete their qualifying procedures, regardless of previous preparation. It is extremely unusual for a department to admit students to do only dissertation work.

Master's Degrees

The Council of Graduate Schools publication, Master's Education: A Guide for Faculty and Administrators, describes the master's degree as follows: "The master's degree is awarded to students who achieve and demonstrate a level of academic accomplishment and subject mastery substantially beyond that required for the baccalaureate degree. Graduates from master's degree programs should have developed the ability to think logically and consistently; integrate and synthesize knowledge; understand how to access knowledge and information within the discipline; write in a clear, consistent, and logical manner; understand the interrelationships between their discipline and others; be aware of and know how to deal with ethical dilemmas within their profession; and apply their knowledge about the discipline to real-life situations."
Conrad and Egan, in Master's Degree Programs in American Higher Education, strive to identify factors that provide insight into program purposes and requirements, and that capture the character and texture of master's level education as well as relationships between master's degrees and other degrees.
The following types of master's degree programs, distinguished by nature and purpose, are adapted from Conrad and Egan and from symposium discussions:

- advanced training, beyond the bachelor's degree, for a profession; e.g. in engineering, education, social work, library science
- scholarly training, beyond the bachelor's degree, with the potential for career advancement; e.g. area studies, international relations, other fields where the higher qualification results in career advancement
- terminal degree not designed to lead to doctoral study
- first stage of doctoral study
- consolation prize for incomplete doctoral study

While the purposes of master's programs vary considerably, the following components identify the benchmark master's degree:

- at least one year of full-time study beyond the bachelor's degree

- at least 30 semester hours (45 quarter hours)
- mastery of a core curriculum or prescribed program of courses, seminars, and/or research component
- faculty adviser who approves the program

Additional optional components of master's programs include the following:

- field work, practicum
- comprehensive examinations
- mastery of a foreign language or research tool
- capstone or culminating experience - thesis, research project, performance
- residency at the degree-awarding school
- coursework and other requirements requiring two or three years in some professional fields

Doctoral Degrees

The Doctor of Philosophy degree (Ph.D.) is the highest academic degree granted by U.S. universities. The Ph.D. is a research degree, while other doctoral degrees, such as the J.D. M.D., or Ed.D., provide professional training and focus on applied rather than basic research.
The nature and purpose of the Ph.D. degree is described in the Council of Graduate Schools publication, A Policy Statement: The Doctor of Philosophy Degree [p. 1].
"The Doctor of Philosophy program is designed to prepare a student to become a scholar, that is, to discover, integrate, and apply knowledge, as well as communicate and disseminate it... The program emphasizes the development of the student's capacity to make significant original contributions to knowledge in a context of freedom of inquiry and expression. A well-prepared doctoral student will have developed the ability to understand and evaluate critically the literature of the field and to apply appropriate principles and procedures to the recognition, evaluation, interpretation, and understanding of issues and problems at the frontiers of knowledge. The student will also have an appropriate awareness of and commitment to the ethical practices appropriate to the field. All of this is accomplished in apprenticeship to and close association with faculty members who are experienced in research and teaching."

American doctoral programs are relatively unique in that they generally include extensive course work. Doctoral degree comparisons across educational systems are misleading, however, if the presence or absence of course work is a requirement for establishing comparability at this level. Quoting again from the CGS publication, the purpose of doctoral study is that students who receive the degree "should have acquired the knowledge and skills expected of a scholar who has made an original contribution to the field and has attained the necessary expertise to continue to do so."

There are Ph.D. programs in the United States which do not have formal course requirements. For example, a computer science department at a major research university admits students directly from the bachelor's degree into a research doctoral

program. No formal courses are required but students must register for directed reading or research. The requirements are designed to provide students with an extensive knowledge of the field and of research skills. To obtain a Ph.D. in this department, students must complete the following:

- breadth requirement - mastery of 10 areas, either by written comprehensive examination or course work
- programming project
- depth requirement - 3 qualifying examinations demonstrating depth of knowledge and familiarity with the literature in a specialization
- teaching assistantships
- research assistantships
- public lecture, usually in a departmental research seminar
- university oral examination/defense of the dissertation before a committee of five
- dissertation approved by a faculty committee of three

Similarly, the transcript of a Ph.D. program in biochemistry at another university shows five courses and two independent study "courses" in the first year followed by five years of biochemistry research with the student's adviser.

However, doctoral programs in the United States usually include at least two years of formal coursework before students begin work on their dissertations. For example, an economics doctoral program at the same university requires the following:

- nine quarter courses in economic theory
- five quarter courses in econometrics
- comprehensive examinations in core course material
- comprehensive field examination in at least one major field of specialization
- orally defended dissertation proposal
- a total of 108 quarter credits, which may include units taken for a master's degree and research units
- dissertation approved by a faculty reading committee

The doctoral program in economics at another university requires completion of eight semester core courses, three courses in elective areas in economics, and three courses in other areas, two of which must be from outside of the department.
Ph.D. degrees in the United States represent an extremely wide range of programs which are tailored to the discipline, to departmental requirements, and to individual students. Doctoral programs have changed over time, also along disciplinary lines, with the addition of more coursework in some fields (for greater breadth and/or depth of preparation), the abolishment of language requirements, and greater frequency of collaborative research, particularly in the sciences and engineering.

The length of time required to complete a Ph.D. program is a highly contentious issue. However, these programs are generally structured so that students ideally can complete all requirements in four to five years of full-time study beyond the bachelor's degree.

The minimum time required is generally three years; the mean at many institutions is six to seven years.

Faculty mentorship and satisfactory completion of a dissertation are the cornerstones of doctoral study in the United States and throughout the world. Another Council of Graduate Schools publication, The Role and Nature of the Doctoral Dissertation, includes the following recommendations: [p.3]

"The doctoral dissertation should (1) reveal the student's ability to analyze, interpret, and synthesize information; (2) demonstrate the student's knowledge of the literature relating to the project or at least acknowledge prior scholarship on which the dissertation is built; (3) describe the methods and procedures used; (4) present results in a sequential and logical manner; and (5) display the student's ability to discuss fully and coherently the meaning of the results. In the sciences, the work must be described in sufficient detail to permit an independent investigator to replicate the results."

Dissertations are reviewed and approved by a committee of faculty in the student's major and related disciplines, according to the standards of each discipline for scholarly work. Ph.D. programs prepare students to be able to continue to produce creative, independent, and scholarly work after they receive the degree.

The benchmark requirements for all Ph.D. degrees are the following:

- a significant period of study, at an advanced, post-bachelor's degree level
- qualifying procedures for admission to candidacy
- mentorship by an adviser
- demonstration of independent research
- dissertation
- evaluation of the dissertation by a faculty committee

Additional requirements may include:

- course and seminar work, which may include independent study
- comprehensive examinations; field examinations
- foreign language and/or research tool competency examinations
- teaching
- oral presentation and defense of the dissertation

VI

The Proposed Methodology

The purpose of this chapter is to outline the proposed methodology for comparing U.S. and foreign credentials. This approach develops profiles of programs, based on their goals and desired outcomes which determine course requirements, content of the syllabi, and pedagogical methods. Thus, for example, "course-by-course analysis" can

only be done with an understanding of the type of the foreign program being evaluated. Foreign programs and credentials are viewed with greater attention to how the preparation relates to expectations in the United States for successful candidates for admission.

The work of the Milwaukee Symposium can be divided in three phases.

In the first phase, following a review of the primary components of U.S. education programs at secondary, undergraduate, and graduate levels, Milwaukee Symposium participants discussed the transition points to develop a list of characteristics of the benchmarks that mark the completion of each level. These characteristics are the basis for evaluating a foreign educational credential and placing it relative to U.S. benchmarks. If a given foreign credential satisfies or exceeds the minimum criteria which establish its comparability to a particular U.S. benchmark, the holder may be considered to meet the minimum requirements to apply to the next level of education.

The second phase of the discussion was to look at different types of programs at each level and how individual study programs prepare students for subsequent academic and professional opportunities. These program profiles provide the basis for comparing whether the program followed abroad provides the appropriate preparation for undergraduate admission in the context of institutional admission policies.

The third phase, which has just begun, is to reconsider the format and language used in Council placement recommendations. For many years, Council placement recommendations have been developed primarily for benchmark credentials. Thus these recommendations do not address variations in preparation represented by credentials at a particular level. The proposed new recommendations that follow are offered as a first step toward the goal of presenting recommendations in a format that more clearly addresses the needs of international educators involved in the evaluation and comparison of educational credentials across systems.

The planners of the Milwaukee symposium and the participants, who included members of the current Council, were enthusiastic about the accomplishments of their work. But the three day event provided only enough time to develop a new conceptual framework that will be refined and enhanced during future discussions.

High School Graduation and Transition to Undergraduate Education

The term "secondary education" is used most frequently abroad to refer to what is most frequently called "high school" in the United States. The general characteristics of four different types of high school programs are described below. Chapter III, Secondary Education and Transition to Higher Education, includes detailed examples of these program types.

Model A High School Diploma - benchmark credential

The benchmark for completion of high school is a diploma representing completion of minimum requirements for graduation. The generic characteristics of the high school diploma benchmark are the following:

- completion of each year of high school
- completion of the requirements specified by the school attended, typically 16 to 21 units taken over 4 years, including courses in the following: English, social studies, mathematics, science, fine arts, health and safety, and physical education
- no required university preparatory courses
- may include units for work experience and other nonacademic work

The benchmark high school diploma gives access to "open door" institutions in the United States, most frequently community and junior colleges which admit any student with a high school diploma. (Restrictions may limit admission to the immediate area served by a public institution.)

Model B High School Diploma - vocational/technical preparation

A high school diploma awarded for completion of a vocational or technical program has the following characteristics:

- completion of each year of high school
- completion of the requirements specified by the school attended for general education requirements (physical education, living skills)
- completion of the requirements specified for the specialized program of study
- no required university preparatory courses
- may include units for work experience and other nonacademic work

Model B represents programs that are designed to prepare students for post-graduation employment and not for higher education, although Model B graduates have access to "open door" institutions and to technical higher education programs in the same field of specialization.

Model C High School Diploma - college preparatory program

The curriculum in U.S. high schools distinguishes between general courses and college (university) preparatory courses in which the content of the material is designed to prepare students for higher education and expectations are higher for student performance. The content of college preparatory courses may be certified by public higher education institutions in the same state and public and private colleges and universities may specify admissions requirements in terms of college preparatory courses.

A Model C high school diploma program has the following characteristics:

- completion of each year of high school
- completion of the requirements specified by the school attended for general education requirements (physical education, living skills)
- completion of college preparatory courses in English, mathematics, science (including laboratory courses), history/government/social sciences, and foreign language
- honors and AP/IB courses encouraged but not required
- includes limited or no units of nonacademic work other than general education requirements

Model D High School Diploma - advanced college preparatory preparation

Model D high school diplomas represent completion of rigorous high school programs designed to prepare students for admission to highly selective institutions. A Model D high school diploma has the following characteristics:

- completion of each year of high school
- completion of the requirements specified by the school attended for general education requirements (physical education, living skills)
- completion of college preparatory courses in English, mathematics, science (including laboratory courses), history/government/social sciences, and foreign language
- limited or no units of nonacademic work other than general education requirements
- a full cycle of sciences (biology, chemistry and physics with laboratories), mathematics through calculus, and honors courses in other departments
- usually Advanced Placement or International Baccalaureate courses sometimes higher education courses taken to supplement the high school program

Implications for placement recommendations:

Placement recommendations have made few distinctions among foreign programs that would assist the U.S. undergraduate admissions officer in determining the profile of the program followed by the holder of a foreign secondary credential. NAFSA Working Paper #23: "Guide to Placement Recommendations" lists two placement recommendations used for credentials that represent completion of secondary school:

"May be considered for freshman admission if a vocational [technical, specialized] program is appropriate preparation. This recommendation suggests the specialized nature of the curriculum followed. The wording further suggests that within the foreign educational system the educational opportunities open to holders of the credential in question may be limited to some post secondary, usually non-university, options."

"May be considered for freshman admission. This recommendation is for graduates of academic, university-preparatory secondary school programs and other programs who can be considered for freshman admission without reservations or qualifiers."

Symposium participants agreed that more informative recommendations would differentiate secondary school credentials as follows:

- minimal completion of secondary school (Model A)
- completion of secondary school; vocational [technical, specialized] program (Model B)
- completion of college preparatory secondary program (Model C)
- completion of college preparatory secondary program with honors level and college-level components (Model D)

Clues to distinguishing among foreign secondary programs lie in analysis of curricular content in the context of the aims of the curriculum, and of what the successful completion of a program gives access to in the home country. These factors are intertwined; a math or social science course in a program designed to prepare students for a vocational career will be substantively different from a math course with a similar name preparing students for university enrollment.

Bachelor's Degree and Transition to Graduate Education

The U.S. bachelor's degree represents a broad range of programs, both in terms of breadth, focus and rigor, within a university and within majors. At any given institution in the United States, a bachelor's degree may represent minimal completion of the degree program or completion of a program that includes seminars, honors coursework, and a thesis.

Model A Bachelor's Degree - benchmark credential

The bachelor's degree, in its most generic form, has the following components:

- completion of high school prior to enrollment
- 120 semester units; 180 quarter units
- designed to be completed in four years
- general requirements specified by the institution
- major requirements specified by a faculty department or program group
- progression from introductory courses, core courses, and electives in a major

While an individual student's program may be eclectic, the bachelor's degree represents completion of a set of requirements, as prescribed by the institution and by the declared area of specialization. Chapter IV, The Bachelor's Degree and Transition to Graduate Study, includes a description of a low unit major. The benchmark bachelor's degree can best be compared to completion of low unit major, general education requirements, and

miscellaneous other courses to fulfill the university's unit requirements for the degree without extensive upper division course work. Model A bachelor's degrees generally do not prepare students for graduate study. However, students with Model A degrees may be admitted to graduate programs that do not require extensive preparation in the major.

Model B Bachelor's Degree

Holders of Model B bachelor's degrees have greater breadth and depth of preparation in major and supporting disciplines and, in some cases, may have completed specific course requirements for graduate study. Model B programs may include interdisciplinary degrees where a number of fields are studied and programs that include pre-med course requirements. Examples are given in chapter IV.

The characteristics of a Model B bachelor's degree may be generalized as follows:

- completion of high school prior to enrollment
- 120 semester units; 180 quarter units
- designed to be completed in four years
- general requirements specified by the institution
- major requirements specified by a faculty department or program group for a major with moderate requirements
- progression from introductory courses in a range of fields to greater specialization and advanced courses in a major, including upper division course work
- substantial number of courses in the major and related fields may include specific courses for a graduate professional program, such as pre-med courses

Model B bachelor's degree programs are more rigorous than benchmark bachelor's degree programs. Model B graduates have stronger preparation for employment and may have prepared for specific graduate programs.

Model C Bachelor's Degree - honors program

Model C programs include extensive and rigorous training in a discipline; its graduates have the strongest preparation for admission to Ph.D. programs.

The characteristics of a Model C bachelor's degree are as follows:

- completion of high school prior to enrollment
- 120 semester units; 180 quarter units
- designed to be completed in four years
- general requirements specified by the institution
- major requirements specified by a faculty department or program group for a major with moderate requirements

- progression from introductory courses in a range of fields to greater specialization and advanced courses in a major, including upper division course work and seminar work
- substantial number of courses in the major and related fields introduction to research
- often completion of honors course work and/or an honors thesis

Implications for placement recommendations:

The U.S. bachelor's degree represents a wide range of undergraduate education, from minimalist programs of study with modest depth and sophistication of courses taken to very challenging programs in which students study a field in depth, take courses in related fields, fulfill general education requirements, and pursue independent study and write an honors thesis. The full range can be found at any university.

Two recommendations are currently used to identify credentials which could be considered to provide access to graduate degree programs in the United States:

"May be considered for graduate admission. This recommendation is used if the program of study is considered to provide adequate preparation for graduate study, without reservations or qualifiers. Normally such a program represents a total of 16 years of education and gives access to graduate education within the foreign system. This recommendation may be used for programs requiring more than 16 years of study if no graduate transfer credit is recommended."

"May be considered for graduate admission in a related field if the specialized nature of the program followed is appropriate preparation. This recommendation is used for programs that are generally comparable to U.S. bachelor's degrees whose curriculum is specialized in nature and provides limited or no access to more advanced study in the home country."

Proposed change: Placement recommendations for foreign credentials should provide more information on the content of the program followed. In addition to establishing a benchmark for comparability to the generic U.S. bachelor's degree, placement recommendations might identify academic undergraduate preparation providing sufficient theoretical and introductory research experience in addition to more narrowly focused undergraduate programs that prepare students primarily to practice a particular profession.

Graduate Degrees

Graduate degrees are structured in very different ways, with patterns of variations most often along disciplinary lines. The model format used for secondary and bachelor's degree programs is less useful in describing graduate programs. However, the critical factors in determining master's and doctoral comparability are provided below.

Master's Degree

The characteristics of a benchmark master's degree are as follows:

- completion of a bachelor's degree prior to admission (except for joint bachelor's/master's programs)
- at least 24 semester hours (36 quarter hours) of study
- a program designed to be completed in one to two years advanced level course work
- completion of university and departmental requirements for the degree

Although most master's programs have additional requirements, the above list of characteristics are the fundamental components of all master's degrees.

Implications for placement recommendations

The following recommendation has been used for all master's degree programs:

"May be considered comparable to a U.S. master's degree. This recommendation is used if the program of study is considered comparable to that of a U.S. master's program. This recommendation is usually not used for first degrees that may represent a level of academic attainment comparable to that of a master's degree but that are different in program structure."

This recommendation and its interpretation emphasize the distinction between a separate master's degree program and an undergraduate program where the level of achievement, based on rigor and length of the program, are considered comparable to master's degree work. However, many U.S. universities offer combined bachelor's and master's programs which allow students to pursue both degrees simultaneously, usually in five years. In these programs, students in the last two years may mix undergraduate and graduate courses and can receive the degrees sequentially or at the same time.

A new approach might identify master's level work, both as a separate degree and as a part of a first degree program.

Recommendations for admission and placement in U.S. graduate programs must be viewed in the context of differing practices among universities and among graduate programs within a university. More so than at the undergraduate level, transfer credit is awarded less frequently in graduate programs and, where it is awarded, it provides less advancement toward completion of the requirements for a graduate degree.

"May be considered for graduate admission with graduate transfer credit determined through a course-by-course analysis of the [fifth, last] year of study; may be considered for admission to a doctoral program. This recommendation is used for first degrees

which represent a level of academic achievement beyond the U.S. bachelor's degree and which merit consideration for graduate admission with graduate transfer credit. Only courses taken at the end of the program (at a more advanced level) should be considered for transfer credit. The phrase 'may be considered for admission to a doctoral program' is used if the level of academic achievement is comparable to that of a U.S. master's degree."

In the context of the discussion of graduate school and program policies, this recommendation is still valuable but holders of credentials with this recommendation should understand the limitations of its usefulness, depending on the program in which they enroll.

Doctorate (Ph.D.)

The characteristics of a benchmark Ph.D. degree are the following:

- U.S. bachelor's degree or equivalent required for admission
- a significant period of study, at an advanced level
- qualifying procedures for admission to candidacy
- mentorship by an adviser
- demonstration of independent research
- dissertation evaluated by a faculty committee

Implications for placement recommendations

Two recommendations have been used for doctoral degrees awarded by foreign institutions:

"May be considered comparable to an earned U.S. doctorate. This recommendation is used if the program of study is considered comparable to a U.S. doctoral program. There may be differences in the structure and requirements of the program, but the credential represents advanced research and dissertation work of a sufficiently high level to recommend doctoral comparability."

"May be considered to represent a level of achievement beyond the U.S. master's degree; it may approach and is sometimes comparable to a U.S. doctoral degree. This recommendation is used if the level of achievement is beyond the U.S. master's degree and, depending on the nature of the research and dissertation, may be comparable to the requirements of a U.S. doctoral degree. Each case should be evaluated individually."

Doctoral programs are evaluated for post-doctoral training positions and for professional positions. Arguably, assessment is frequently based on evaluation of the dissertation, teaching experience for some academic positions, publications, and other professional experience. The usual components of an credentials evaluation methodology are less significant; rather, the assessment is made by professionals in the discipline. However, the credentials evaluator should consider such factors as whether the program

represents significant advanced work beyond the first degree and whether assessment is by faculty qualified to evaluate doctoral level work; e.g., by faculty who hold doctoral degrees.

VII

Institutional Self Analysis

The material in this Chapter is designed to provide guidelines for comparing a foreign credential to the admission requirements at your institution. Using the material in Chapter VI, determine whether the program represented by the credential satisfies or exceeds the minimum criteria for establishing comparability to the corresponding U.S. benchmark. If yes, the holder of the credential may be considered to meet the minimum requirements to apply for admission. Then use the following material to analyze which model in Chapter VI most closely resembles your institution's admissions practices.

Undergraduate Admission

Use this worksheet to review, quantify, and qualify your institution's undergraduate admissions policies. If your institution does not provide detailed specifications for high school preparation, indicate usual preparation of successful applicants.

1. At my institution, completion of secondary school and freshman admission requirements for U.S. students are as follows:

- Number of year-long units of college preparatory English
- Number of year-long units of college preparatory mathematics (algebra, geometry, calculus, trigonometry)
- Number of year-long units of laboratory science
- Number of year-long units of history, social science, government
- Number of year-long units of the same foreign language
- Number of other year-long units of college preparatory course work

2. Answer "yes" or "no" to the following:

- A high school diploma is the only academic requirement for admission
- Vocational, technical, or another specialized high school program is appropriate preparation for my institution
- A large number of freshmen receive advanced placement and/or transfer credit at my institution for work completed while in high school

3. Based on these factors, my institution's admissions profile most closely resembles the following generic model (see Chapter VI):

- Model A - open door admission
- Model B - vocational/technical preparation
- Model C - college preparatory program
- Model D - advanced college preparatory program

You are now prepared to compare the program represented by the foreign credential to the model of secondary preparation in Chapter VI that most closely parallels the admissions practices at your institution.

Graduate Admission

The first evaluation point for graduate admission is to determine whether candidates hold a degree comparable to the U.S. benchmark bachelor's degree. Review the characteristics of the Model A benchmark bachelor's degree in Chapter VI.
If the credential being evaluated meets the benchmark criteria, determine which model most closely describes the program followed. How does this model relate to expectations for preparation of successful applicants to the program requested?
Does the program requested admit students to the master's degree only? to a master's program leading to admission to doctoral study? directly to doctoral study from the bachelor's degree?
Does the applicant have a credential that has the characteristics described in Chapter VI for the benchmark master's degree?

Ph.D. Degree Equivalence

Because the Ph.D. is the highest degree awarded by U.S. universities, the function of evaluating foreign degrees for comparability to this degree is to determine eligibility for post-doctoral study and for professional positions. Use the characteristics of the benchmark Ph.D. degree described in Chapter VI to evaluate credentials potentially at this level.

Appendix A

Useful References

Projects for International Education Research (PIER) Special Reports:
Europe-U.S.A.. Mutual Recognition of Qualifications.: Report of the UNESCO Working Group, Caroline Aldrich-Langen, 1996.
Methods and Skills for Research on Foreign Educational Systems: A Report on the NAFSA/EAIE 1994 Seminars, Caroline Aldrich-Langen, 1995.
Understanding the Admissions Process in U.S. Higher Education: A Case Study Approach, Caroline-Aldrich-Langen, 1993.
Council of Graduate Schools Policy Statements:
An Essential Guide to Graduate Admissions, 1992.
Master's Education: A Guide for Faculty and Administrators, 1994.
The Doctor of Philosophy Degree, 1990.
The Role and Nature of the Doctoral Dissertation, 1991.
NAFSA Working Paper:

Guide to Placement Recommendations: The National Council on the Evaluation of Foreign Educational Credentials, William H. Smart and Ann Fletcher, 1991.
World Education News and Reviews articles:
"Evaluating International Credentials: Problems of Transfer Credit," Alan Margolis.
"Key Concepts of U.S. Education," Alan Margolis, Summer 1994.
Other:
"Forms and Functions of Secondary-School-Leaving Examinations," Eckstein and Noah, Comparative Education Review, Vol 33, No. 3, 1989, pp. 295-316.
"Master's Degree Programs in American Higher Education," Conrad and Egan, Higher Education Handbook of Theory and Research, Vol 6, New York: Agathon Press, 1990, pp. 109-160.
"Mobility and Recognition: Equivalences in Europe," Higher Education in Europe, Vol. XV. N.2, 1990.
Transfer Credit Practices of Designated Educational Institutions-An Information Exchange, American Association of Collegiate Registrars and Admissions Officers (AACRAO), Washington, D.C.
"Undergraduate Higher Education in Europe: Towards a Comparative Perspective," European Journal of Higher Education, Vol. 27, Nos. 1/2, 1992, pp. 121-144.

Appendix B

Milwaukee Symposium List of Participants

Council Representatives
Robert Brashear, Chair (AACRAO)
Dir.of Admissions, Registration and Records
Hong Kong University of Science and Technology
Kowloon, Hong Kong
Gloria Nathanson (AACRAO)
Undergraduate Admissions
University of California, Los Angeles
Los Angeles, California
Margit Schatzman (NAFSA)
Educational Credential Evaluators, Inc.
Milwaukee, Wisconsin
Ellen Silverman (NAFSA)
University Admissions Processing Center
City University of New York
New York, New York
Robert Watkins, Chair Elect (NAFSA)
Office of Admissions
University of Texas at Austin
Austin, Texas
Timothy S. Thompson (College Board)
Senior Admissions Officer
Office of International Services

University of Pittsburg
Pittsburgh, Pennsylvania
Barbara Turlington (ACE)
International Education Office
American Council on Education
Washington, DC
Michael Lisano (CGS)
Associate Dean
Graduate Studies and International Programs
Auburn University
Auburn, Alabama
Adam Blough (IIE)
Institute of International Education
Midwestern Region
Chicago, Illinois
Nancy Rutenber (New York State)
Office of Professional Credentialing
State of New York Education Department
Albany, New York
Association Leadership
Alan Margolis (NAFSA)
Registrar Emeritus
Queens College
Flushing, New York
William Paver (AACRAO)
Admissions Office
University of Texas at Austin
Austin, Texas
Kathleen Sellew (PIER)
Office of International Education
University of Minnesota
Minneapolis, Minnesota
Bill Smart (NAFSA)
International Education
Oregon State University
Corvallis, Oregon
Participants
Eva Adan
Undergraduate Admissions
Georgia State University
Atlanta, Georgia
Brian A. Bates
Admissions and Student Affairs
American Graduate School of International Management
Thunderbird Campus
Glendale, Arizona

Karen Hartwig
Admissions Office
The University of Iowa
Iowa City, Iowa
Johnny Johnson
International Student Programs
Monterey Peninsula College
Monterey, California
Liz O'Connell
International Admissions
University of Pennsylvania
Philadelphia, Pennsylvania
Robert Prather
International Admissions
California State University, Long Beach
Long Beach, California
Jeannine Putchinski
International. Studies and Programs
University of Wisconsin - Milwaukee
Milwaukee, Wisconsin
Joseph Sheehan
International Services
University of South Alabama
Mobile, Alabama
Observing Participants
Leila Edwards
Graduate Records Examination (GRE)
The Graduate School, Northwestern University
Evanston, Illinois
Kees Kouwenaar
European Association of International Education (EAIE)
NUFFIC
The Hague, The Netherlands
Symposium Planning Committee
Mariam Assefa
World Education Services
New York, New York
Ann Fletcher
Office of the Provost
Stanford University
Stanford, California
James S. Frey
Educational Credential Evaluators, Inc.
Milwaukee, Wisconsin
Robert Watkins
Office of Admissions

University of Texas at Austin
Austin, Texas
Caroline Aldrich, Chair
Academic Advising Services
California State University, Chico
Chico, California
Appendix B: Milwaukee Symposium Participants
Published by Projects for International Education Research (PIER)
PIER is sponsored by
American Association of Collegiate Registrars and Admissions Officers
NAFSA: Association of International Educators
The College Board
The Milwaukee Symposium was funded by generous donations from the following organizations:

American Association of Collegiate Registrars and Admissions Officers (AACRAO)
Education Evaluators International, Inc.
Education International, Inc.
Educational Credential Evaluators, Inc.
Graduate Management Admission Council (GMAC)
Graduate Record Examination (GRE)
International Education Research Foundation, Inc.
Josef Silny and Associates, Inc.
Test of English as a Foreign Language (TOEFL)
USIA Field Service Grant, administered by NAFSA: Association of International Educators
World Education Services, Inc.