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ABSTRACT

Structural and functional changes will be needed for the university of the future, and it is possible to predict in general terms some of these changes. A look at the history of the university and an examination of current trends suggests that the dominant feature of the future university will be that it will not be organized hierarchically as its predecessors were. The distinctive feature of the future university could be its concentric structure, a structure that could be based on the functional relatedness of broad but specialized fields of knowledge. Many changes will result from changes in precollege programs. The curriculum for elementary school might focus primarily on symbol systems and citizenship, while after elementary school students might enter an 8-year form of education in which they would focus on their culture and the careers open to citizens within that culture. Students might thus complete 16 years of education, receiving an associate degree at the end of that time, rather than a high school diploma. This would allow most entering freshmen to move immediately to more specialized work at the university level, with earlier specialization that still allows for interdisciplinary teaching and learning with an organization that would facilitate great variations in student programs. Lecturing would remain a recognizable style of teaching, but it would mostly be the province of master scholars, and many other forms of teaching would be used. Increasing uses of technology would foster the development of individual programs tailored to the interests of the individual student. (SLD)

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Looking forward to the university of the future requires a sensitivity to the dominant changes that have taken place in the last 40 years. What we see on the university campus in 1985 and what we understand are responses to changing societal demands and expectations since World War II. In some respects, the university is the best example of Toynbee's "challenge-and-response" as the basis of civilization. The university is successful because it has met the challenges with which it has been confronted and has the reserve-energy to move on to other challenges. Another way of saying this is: the university is not an exhausted institution; it is responsive to opportunity as well as adversity; it still has much to contribute; and in life-cycle terminology, it still has many years to live.

In other respects, the university is not yet a mature institution. This means simply that it has not yet reached its full potential; it is not yet at the full peak of its powers; it has yet to discover its own strength. In brief, it is still growing, developing, maturing—stimulated vigorously by outside pressures, cultural needs and demands, and yet aware of internal processes that are unfolding, moving from one logical and appropriate stage of development to another. Thus, the university is at the mercy neither of its own growth processes nor outside stimulation. It is a responsive growing institution, much as an organism must be attentive to environment/climactic conditions—but it is also a force in motion that has its own momentum and direction. That force is not blind or random—and the university is not a social institution at the mercy of natural selection. It is an adaptable institution and it does adapt!

What then can we say about its future? Observing and studying its challenges in the past, can we describe in realistic terms the university's adaptations to future challenges? Yes, if we can identify the challenges the university must meet in the future. More accurately, we should say that structural and functional changes will be needed for future adaptations and given the university's success in meeting past challenges, we should be able to predict—in relatively general terms—some of the changes that our children or grandchildren will observe in the 21st century.

CURRENT TRENDS AND FORCES

Several trends, easily seen in the 1980s, will affect educational policies and practices for the next twenty years. In 1985, we are as close chronologically to the year 2005 as we are to 1965—and as close to the year 2015 as we are to 1955 when Dwight D. Eisenhower was president. Some observers believe that we are still in the process of assimilating certain changes that were forced upon us in the 1960s. In retrospect, we can see the beginnings of those changes in the 1950s, but we still cannot explain why some changes were not anticipated better and why they were so sudden and so violent.

In the 1970s the university's successful response to its many challenges was often in doubt. Student protests, faculty dissent, and other crises—now best regarded as growing pains—resulted in a loss of public confidence that became a financial crunch, a demand for accountability, and a host of federal and state regulations. Yet, it is the success of the university in coping with its existential crises of the

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1960s and 1970s that produced the problems with which it must cope in the 1980s.

Looking ahead, we can speculate that our solutions to the problems we now have will become the problems with which we must cope in the future. For those of us who like to think in terms of decades, we can propose that sometime—around 2005—we will again find national attention directed to educational problems and once again the university will be responding to the challenges that thrust themselves upon busy presidents, deans, department heads, and faculty members. If so, the university will be in the midst of the *sixth* or *seventh* reform movement that has swept through the nation's schools and colleges since the turn of the 20th century.

ROLLING THE PAST FORWARD

The past thirty years (1955-1985) in higher education deserve our closest attention. Although many rapid changes can be observed in the structure and functions of the university during that period, there are many continuities to be seen. In 1985 the university has many organizational units that it did not have in 1955, but it maintains the same basic structure of colleges and departments of instruction. A relatively new administrative function is the vice presidency: research, instruction, services, student affairs, business and finance, and institutional development. Similarly, some administrative titles are defunct: deans of men and deans of women; and others should be: deans or directors of summer schools or evening classes and graduate deans.

Change and continuity can thus be seen as an interesting interplay between the university's structure and its functions. By no means, does form or function dictate the other. Both are adaptable to changing demands and expectations, but they are not adaptable at the same rate and it is quite possible for one to adapt in one manner while the other adapts in another manner. For example, student protests and the demise of *loco parentis* resulted in various structural arrangements for student services. Other functional changes, such as those observed in student health services, appear to have taken place in a different manner.

Looking at the various trends and forces that influence the development of higher education, the interplay of structure and function, the changing demands and expectations for programs and services, and the institutional responses universities characteristically make to challenges, we can indeed speculate about the structure and functions of the future university.

THE FUTURE UNIVERSITY

In discussing the structure and functions of the university, as they might appear to our descendants, we are talking about the university after it responds successfully to the challenges encountered in the 21st century. In other words, we can speculate that in the early years of the 21st century, another wave of educational reform will wash upon the shores of academe, and we can hope that it will be a more successful reform of higher education than several reforms observed during the 20th century.

STRUCTURAL FEATURES

The dominant feature of the future university could be that it will not be organized hierarchically, as its predecessors were. *The impetus to many organizational changes will be the pride we take in our organizational talents.* Adaptability, flexibility, and innovation could be revered as much as tradition and convention were once revered in New England and parts of the southern region. Future scholars may well attribute the renewed reverence for organizational adaptability to conditions of international competition that were observable in the 1980s.

The distinctive feature of the future university thus could be its concentric structure. Instead of organizational charts showing the flow of authority and responsibility from governing boards through presidents and vice presidents to deans and department heads, it is altogether possible that institutes, centers, and faculties could be organized in terms of their transdisciplinary fields of specialization.

The authority and responsibility of the university would be even more decentralized than it was in the days when it was called "organized anarchy." This decentralization, however, would organize faculties according to their research, instructional, and service specialties and to cooperate within a framework of mission-oriented institutes or centers. Colleges, if they are still called that, would be organized to serve highly specific, focused purposes and functions.

The structural organization of the university could be based on the functional relatedness of broad-but-specialized fields of knowledge. The functional classification of these fields of knowledge could be similar to the broad curricular fields of: (a) the humanities and fine arts, (b) the physical and biological, or natural, sciences, (c) the behavioral and social sciences, and (d) the diverse professional and applied fields of study evidenced in the organization of contemporary universities. The boundaries of the broad/general fields of specialization could be erased by large functional areas of inter-related or transdiciplinary studies. Just as colleges of arts and sciences subsumed under one collegial structure the diversities of sciences, humanities, and arts, so could boundary-spanning institutes and centers pull together scientists, scholars, and practitioners with compatible research, instruction, and service interests. Academic departments of instruction, such as the department of psychology, may or may not be fondly remembered by future researchers or scholars.

FUNCTIONAL FEATURES

The ways in which the future university functions or operates could be quite different. Many of these differences could follow from dramatic changes in the structure and functions of elementary and secondary education *and* the preparation of students who enter the university. Other differences could result from the continued professionalization of academic disciplines and the blurring of distinctions among professional, graduate, and undergraduate education.

Pre-College Programs: In the 21st century children will probably enter the public schools at the age of four and remain within "elementary education" until they are about twelve. The eight years of education they receive there need not be horizontally divided into kindergarten, primary grades, or middle school but could be integrated along the functional lines of child growth and development. In other words, all students might not enter at four years of age, but most could. The point is that students would enter school when they are educationally ready to benefit from the teaching, training, and development that schools can provide. Other societal agencies would provide pre-school care for working mothers.

The curriculum for the elementary school might focus primarily on symbol systems and citizenship. In brief, students could learn to use verbal, numerical, visual, auditory, and other perceptual symbol systems on which society and culture thrive—and they could master the concepts and basic principles of citizenship in a fully participatory society. Students would advance through elementary school as they learn, develop, and mature. The curriculum, in particular, would be vertically integrated and not segmented into grades as such.

Following completion of elementary school, students could enter another eight-year form of education in which they focus primarily on their culture and the careers open to citizens within that culture. Much of what is now covered in a four-year liberal arts degree program could be integrated into the curricula of secondary schools, and virtually all we know as general education at the lower division of higher education might be included. In addition to a comprehensive exposure to their particular society and culture, students could prepare themselves for one or more productive and personally satisfying careers. Those who later enter the professions requiring a university education would satisfy virtually all pre-professional requirements at this stage of education. Those who conclude their formal education at this stage would be amply qualified to begin a career of their own.

Students completing the sixteen years of formal education, designated as elementary and secondary education, would not receive a high school diploma but an associate degree. Many of these graduates could receive not an associate degree, but a baccalaureate degree in arts, technology, or other such designations.

University Curricula: The form and substance of pre-college education in the 21st century could mean that most entering university freshmen will move immediately to advanced, specialized coursework in a professional/ academic area. Some students with limited backgrounds in general/liberal arts education might be directed to programs in which they will earn a baccalaureate degree prior to continuing their education, but their baccalaureates would be a highly accelerated degree program and will probably take no more than one or two years. Most students graduating from the university in four years could earn at least a master's degree in some chosen field of specialization. There could be no distinction, however, between graduate and professional programs as such and students would graduate from the university whenever they complete requirements of their chosen degrees. For example, students might enter the university with expectations of earning a Ph.D. in what was once known as physics or chemistry. If well prepared, they may begin coursework in a six to eight-year program and graduate with the Ph.D. as their only earned degree. In all probability, however, such students may earn a baccalaureate in secondary education and some, having worked in industry, may earn a master's degree through part-time study at the university.

Programs of study of the 21st century could be identified by the broad, general disciplinary areas in which they are found. The structural/ functional features of the future university suggest that specialization would be possible in both "boundary" disciplines and in "core" disciplines or fields of study. As an example, students may choose to specialize in the cultural sciences (i.e., the humanistic/cultural areas of knowledge), the policy sciences, (as the behavioral and social sciences were called as early as 1951 by Harold Lasswell), or the theoretical sciences, as some scholars believe the physical, biological, and engineering sciences should be called. And of course, there would still be such professions as law and medicine that require specialization. It is relevant, therefore, that all fields of study could be highly integrated vertically—that is, in terms of years of study and not segmentally or horizontally. *Each field of specialization would have its history, philosophy, technology, and related issues that would be studied as learners acquired the knowledge, competence, and understanding that is essential to a field of specialization.*

Most students graduating in four years could earn at least a master's degree in some chosen field of specialization.

An encouraging feature of the university, however, could be the abundant opportunity that learners have for genuine interdisciplinary study. *All professional faculties might include some historians, philosophers, sociologists, etc., who have specialized in a general disciplinary field but the "boundary" programs would have faculty members who apply their research, teaching, and service expertise to the interdisciplinary concerns of two or more "boundary" fields of knowledge.*

In other words, the bases of the university's curricula would still be the broad/general areas of knowledge that are distinguishable today—but the many opportunities for interdisciplinary teaching and learning—and the structural/ functional organization of the university would facilitate student degree programs of varying length in time, different degrees of specialization, and diverse sequences of academic progression.

TEACHING AND LEARNING

Consideration of the major structural/functional features of the future university leads to many conjectures about how it all will work. Although learning would still be the "heart and soul" of the university as an institution of higher education, there will be many changes in the way students learn, in the way faculty members teach, and in the way in which learning is assessed. All of these changes could result from professional and technological innovations that would be permissible (or necessary) with the university's re-organization.

Instruction: Student learning in the future university would be different because the methods of instruction employed by teaching faculty would be greatly improved. A remarkable diversity of techniques and styles could be used by faculty as they make concerted, well focused efforts to assist students in achieving the knowledge, competence, and other expected outcomes of studying and learning within the university's programs of instruction.

Lecturing would still be a recognizable style of teaching because of its intrinsic merits as a means of sharing knowledge. But lecturing would be mostly by master scholars who give a distinctive view of cultural events and developments. The university's best scholars, scientists, and practicing specialists might also teach in other institutions or divisions and units of the university system. By that time higher education should truly be a system of inter-related parts, and communication within and between the separate units should be not only technically feasible but educationally sound.

Learning: The learning of students would be facilitated most by the university's resources, capabilities, and willingness to measure student achievement and to assess the learner's stage of intellectual/educational development in specific areas of knowledge and competence. All universities in the 21st century would take seriously their testing-examining-evaluating responsibilities by applying testing theory and technology that was available (in lesser form) as early as the 1960s.

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Students entering the university for the first time could take extensive tests not to determine their admission but their stage of academic development and their placement within a suitable program of study. The university would accelerate through advanced placement those students who can demonstrate satisfactorily that they already command the knowledge, competence, and understanding required at specific stages of academic/professional development.

The university could successfully implement advanced placement and credit-by-examination policies because many methods of measurement and assessment will be computer-transactional. In some cases, the learner and the computer will use heuristic reasoning methods to assess with accuracy and precision the learner's particular stage of development in a specified area of learning. In many cases, it will not be obvious to observers whether the student is being tested or being taught by the computer as their transactions pinpoint areas of knowledge and competence and specify the student's level of development.

Computer methods of measurement, assessment, and evaluation—as much as any single feature of the future university—could be responsible for the effective transition of learners from secondary levels to higher levels of education. For many students the time taken to earn an academic degree would be reduced, and for all students, the learner's mastery of knowledge and competence would be enhanced. For most students such computer methods could enhance their understanding and appreciation of cultural values and help instill attitudes and interests of sociocultural relevance.

CONTINUING AND DECISIVE CHANGE

If not too far-fetched—this conjectural view of the future university suggests many continuing and decisive changes in education. The future university, just as its predecessors in the 20th century, would continue to be in a state of intellectual/cultural ferment. *Its intellectual/cultural leadership would be well established and the major source of ideas, values, innovations, and creative artifacts that bring meaning to economic, technological, and cultural development.* The university's mission would be fully recast in terms of human purposes and experience, and the university's benefactors would fully support the university's commitment to the development and enhancement of human intelligence and achievement.

A mark of the university's wisdom, however, would be its recognition that no institution can be all things to all people. Such recognition is one reason why the university would relegate to secondary schools (and four-year liberal arts colleges) responsibility for general education, the basics of the liberal arts, and the study of careers for which sixteen years of formal education suffice. In giving up the baccalaureate degree, the university would give a new relevance to and enhance the value of graduate and professional degrees. Such changes imply that four-year colleges could continue to serve certain specific and immediate community needs but by working much more closely with the university.

By relegating general and career education to secondary schools—when they are ready to accept such responsibilities—the university could indeed seek a better integration of its teaching, research, and service commitments. *It could indeed adapt recent technological innovations from a computer/information processing/communications revolution to the demands and expectations of an intellectual/cultural/educational revolution.* Some of us believe that the future university will take such matters for granted!

THIS ISSUE . . .

This issue of IHE PERSPECTIVES is a slightly edited version of an unpublished paper presented at the University of Georgia's Bicentennial Alumni Seminar, "Two-Century Heritage-21st Century Challenge," at the Georgia Center for Continuing Education on February 15-17, 1985. Fourteen years later, the "present tense" of 1985 is still evident—and the relevance for 1999 is appreciable!

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