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ABSTRACT

This paper examines the rapidly developing trends of cooperative education and nontraditional study. The author sees these trends as an attempt to end the self-imposed isolation of higher education. The first, cooperative education, brings students out of the more traditionally cloistered classroom setting into the world of work. The second, nontraditional studies, brings adults who in past years have completed college back into the classroom. These trends are seen as a response to pressures to integrate education into the life needs of learners as well as to allow greater educational opportunity for a larger number of potential students. An extensive bibliography is included. (MJM)

The Integration of Learning and Earning: Cooperative Education and Nontraditional Study

K. Patricia Cross

1973

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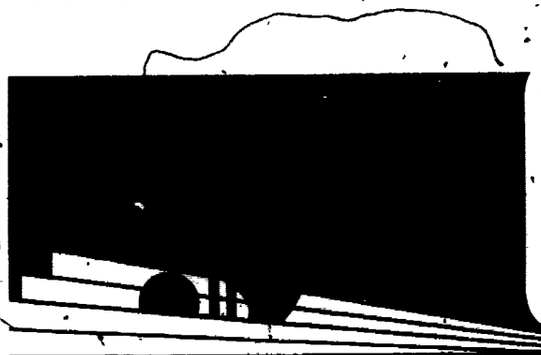

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K. Patricia Cross

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Foreword

This paper examines the rapidly developing trends of cooperative education and nontraditional study. The author sees these trends as an attempt to end the self-imposed isolation of higher education. The first, cooperative education, brings students out of the more traditionally cloistered classroom setting into the world of work. The second, nontraditional studies, brings adults who in past years have completed college back into the classroom. These trends are seen as a response to pressures to integrate education into the life needs of learners as well as to allow greater educational opportunity for a larger number of potential students. The author, K. Patricia Cross, is a Senior Research Psychologist of the Educational Testing Service, Western Office.

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Old Assumptions, New Realities

Ever since education became so important to society that it was given status as a special function with its own buildings and its own specialists, the separation of education from the normal routines of life has seemed natural and logical—perhaps even necessary—to us. We have become so accustomed to thinking of education as occurring at a defined period in our lives and at specified times and places that the notion of "deschooling society" seems radical and unrealistic. Yet there is evidence that we are moving—not as fast or as far as some radical reformers would like perhaps—to end the self-imposed isolation of education. Let us look at some of the visible symptoms of the underlying trend by identifying some old assumptions and some new realities.

Old assumption: Good colleges are located in "college towns" away from the pressing realities of the city. Good colleges establish self-sufficient communities with social and cultural and sleeping and dining facilities apart from the community.

New reality: Urban locations are increasingly popular places for establishing new institutions; community colleges as well as 4-year institutions are becoming integral parts of their communities; there are student pressures to move out of the dormitories and to engage in extra-curricular activities with the people of the community.

Old assumption: Real learning takes place on the campus in the classroom of a professor who has recognized credentials.

New reality: The external degree and other forms of off-campus study are growing by leaps and bounds; peers, adjunct professors and paraprofessionals are making their appearance throughout the educational system.

Old assumption: Young people are educated to take their place in society by completing their education before they assume the responsibilities of citizenship; adults have *finished* their education.

New reality: College students constitute a significant group of people actively engaged in the political process; the voting age has been lowered to include college students; the majority of college students are part of the workforce. At the same time, the age of college students is on the rise, and adults constitute the most rapidly expanding segment of citizens seeking new learning opportunities.

These examples suffice to illustrate a major change in the national conception of education. There is an emerging move to end the isolation of education, and it is just beginning to surface and to engage the conscious attention of people in and out of the educational establishment. This review will concentrate on the two sides of the coin of one major dimension of the new reality—the entrance of formerly fulltime students into the world of work and the return of formerly fulltime workers into the world of formal learning.

Cooperative education, the integration of classroom work with practical experience on a job, is one of the most rapidly growing major curricular innovations of the 1970s. It is an old idea practiced by a small band of followers until now. The literature in the field is deep and narrow, i.e., it goes far back in time but is limited to a relatively small number of writers. An analysis of what we know about this burgeoning movement will illuminate present attempts to enrich and expand the learning experiences of young, formerly fulltime college students.

Nontraditional study is the other side of the coin. It is the very recent almost explosive movement that seeks to enrich and expand the lives of formerly fulltime workers by introducing formal learning experiences into the daily lives of adults.

Cooperative Education

Cooperative education is increasingly popular because it is so relevant to a group of problems plaguing established American higher education. Suppose someone were to offer an educational program that would make substantial contributions to the following goals:

- More relevant education for students.
- Increased student financial aid.
- Increased communication and understanding between college and community.
- Expansion of opportunity for ethnic minorities and women.
- Decreased insularity of faculty members.
- Increased probability of jobs for graduates.

Would colleges leap to install such a program? At the moment, the answer seems to be a lukewarm "maybe." And yet, under the slow-moving and conservative exterior of higher education, many advocates of change are finding strange bedfellows. Consider the possibility of a coalition of a conservative businessman who believes that young people should work because it instills character and responsibility, an Illich-type radical reformer who believes that the greatest lessons of life are learned not in the schools but through using the learning resources of the community, a young black student without adequate funds who just wants a chance at economic and career equality, and a college administrator concerned about finding money for programs and students. Add to this picture the image of prestigious study commissions on future priorities in higher education making statements such as the following:

> Society would gain if work and study were mixed throughout a lifetime, thus reducing the sense of sharply compartmentalized roles of isolated students v. workers and of youth v. isolated age (Carnegie Commission on Higher Education 1971, p. 2).

> With the exception of summer jobs, most young people in college have no first-hand knowledge of any occupation save that of being a student. A great deal of student concern about the relevance of their education can be attributed to their isolation (Newman Task Force 1971, p. 4).

> Students ought to be permitted to intermingle study and work in ways that are now uncommon . . . significant employment opportunities for students may be provided in term-time if the university recognizes the value of such experience and is prepared to admit its educational importance (Assembly on University Goals and Governance 1971, p. 5).

It is hard not to see increasing interest in student work-study experiences. Between the old vocational aims of learning for earning and the practical financial necessity of earning for learning, there lies a powerful combination of earning and learning in which each reinforces the value of the other.

Cooperative education has been around in this country for almost three-quarters of a century. During a long and somewhat uneventful childhood, cooperative education grew slowly but steadily--"a kind of tortoise in the land of hares" (Ferris 1969, p. 480). Within the past decade, however, this distinctive American educational program has experienced a spurt in growth that is likely to make it both big and important in the years ahead. Educationally, it is not inappropriate to refer to the present period as one of adolescence for the cooperative education movement. It is growing rapidly; it is attracting considerable attention; and although physically vigorous, it is having some problems with identity. The identity crisis is apparent in the excessive concern in the literature with defining cooperative education.

Defining Cooperative Education

There are literally dozens of definitions of cooperative education. (Armsby 1954; Collins 1968, 1971; *Public Law 90-575;* Stirton 1968; Wilson & Lyons 1961; Knowles & Associates 1971; National Commission for Cooperative Education 1971; Wilson 1970a; University of the Pacific, n.d.; The American Society for Engineering Education, 1972). Definitions differ, of course, in intended audiences, inclusiveness, and precision of vocabulary.

One can go from the quite straightforward definition used to recruit students for the cooperative engineering program of the University of the Pacific, for example to the official statement of the National Commission for Cooperative Education, which is used for the guidance of program developers. The University of the Pacific (n.d.) informs students that:

> Cooperative education is the integration of classroom work and practical experience in a planned program. Under this program a student alternates periods of attendance at college with periods of employment in an organization which will enhance his training and development. The employment periods are a regular, continuing, and essential element in his educational process.

The National Commission for Cooperative Education (1971) tells institutions that:

> Cooperative education is that education plan which integrates classroom experience and practical work experience in industrial, business, government or service-type work situations in the community. The work experience constitutes a regular and essential element in the educative process and some minimum amount of work experience and minimum standards of successful performance on the job are included in the requirements of the institution for a degree. . . . The institution takes the responsibility of finding educationally related jobs for the students.

The major philosophical differences in the many definitions available center around the *relationship* between student work and study. Specifically, must the work experience be related to the student's chosen vocation or may it be considered a broader developmental learning experience?

The controversy surrounding this question seems more than semantic. Stirton (1968), for example, rejects the notion of cooperative experience that includes:

> . . . more casual and primarily socially oriented activities, even though such programs may be defined or labeled by their originators as 'cooperative education programs' (p. 28).

He prefers to limit his concern to "a systematic attempt to make student work assignments highly related to academic and vocational aspirations . . ." (p. 28).

The colorful definition phrased by Charles F. Kettering also implies strongly vocational purposes. Kettering helped establish the General Motors Institute and described cooperative education in the language of his trade:

> What gives cooperative education its strength is that it lap-welds theory from the classroom with practice on the job. It creates a weld that is much stronger that the butt-welding of a college degree followed by employment, the two touching at only one line of contact (Kettering, cited by Tyler & Mills, 1961, p. 5).

Such vocationally-oriented definitions are attacked by Biester (1969) and by Wilson (1970a) who are interested in maximizing the integration of different kinds of learning experiences. Davis (1971) argues the case for cooperative education as liberal education:

> At its best, cooperative education is liberal arts education. . . . Although it is difficult to define precisely the liberal arts component of cooperative education, it is not unreasonable to expect that with proper guidance and reflection students can learn to define and solve problems, to recognize different value systems, to test theory against practice, and to appreciate

knowledge both for its utility and for its own sake. Cooperative education is a form of liberal as well as career education (p. 140-141).

It is hard to tell from the current literature just how broad the concept of cooperative education will become. The trend is away from narrow vocational definitions. One of America's best-known authorities, Asa Knowles (1971a) observes that:

> . . direct connections between the work and study aspects of the educational program are being deemphasized, especially in the humanities and social sciences. In nontechnical areas, emphasis often is on the human development of the student as an individual, for the role he sees for himself in society in the years ahead (p. 229-230).

Wooldridge (1973) chastises those who would restrict the use of the term cooperative education to those who follow the "true path." He opts for the all-inclusive concept. For him, "paid and nonpaid jobs, internships, experiential, and off-campus experience programs are all legitimately within the larger concept of cooperative education." This seems a sweepingly inclusive definition and makes the term "cooperative education" almost as meaningless as the now-popular "nontraditional" studies that we shall discuss in the second portion of this review.

The four requirements set forth by Collins (1971) are more restrictive. He observes (probably correctly) that the vast majority of institutions still adhere to the traditional definition that requires the following factors to be incorporated:

> (1) The student's off-campus experience should be related as closely as possible to his field of study and individual interest within the field. (2) The employment must be a regular, continuing, and essential element in the educational process. (3) Some minimum amount of employment and minimum standard of performance must be included in the requirement for the degree or certificate presented by the school. (4) The working experience will ideally increase in difficulty and responsibility as the student progresses through the academic curriculum and, in general, shall parallel as closely as possible his progress through the academic phase (p. 29-30).

As is generally true in times of great growth in the spread of an exciting idea, the practitioners on campuses are likely to be conservative as they perceive and implement change, and the leaders of the movement are likely to be too far ahead of the troops in their perception of the amount of real change that has taken place. We shall, therefore, attempt to cast this review somewhere between the traditionally narrow, vocationally-oriented definitions of cooperative education and the new, broadly experiential definitions.

For our purposes, the term cooperative education will be used to stress the importance of work in the real world as a vital learning experience complementing the formal curriculum. The work need not be for wages, but it must be a real job selected to enhance and enrich the college education of the student. This is the sense in which we shall use the term throughout the remainder of this review.

Present Status

Cooperative education programs are growing so rapidly that it is virtually impossible to present accurate figures on the number of programs in operation. By the time figures get into print, they are out of date. Predictions are that programs of cooperative education will double over the next few years—to 500 institutions by the mid-1970s (Wilson 1971a). But that prediction is already proving conservative. Today there are more than 350 institutions offering some form of cooperative education with another 200 programs in the planning stages (Wooldridge 1973). The rate of growth over the past decade has been little short of phenomenal. In 1960, there were only 35 programs; by 1971 there were 225 (Knowles 1971c); only 2 years later there were 350, and the end seems nowhere in sight. Wooldridge (1973) observes that in a recent year, 630 institutions applied to the Federal Government for $25 million of cooperative education funds. In a survey conducted for the Commission on Non-Traditional Study in the spring of 1972, approximately 415 institutions reported granting credit for cooperative work experience (Ruyle, Geiselman, Hefferlin 1973). Some of these colleges, of course, may have been accepting transfer credit for cooperative experiences in other colleges without necessarily offering their own program. Perhaps the best estimate is that the number of cooperative programs is climbing toward the 400 mark, with the most rapid rate of growth taking place in public community colleges. On the basis of a 1972 survey of 317 colleges known to have cooperative programs, Wilson (1972) concluded that approximately two-thirds of the programs were in senior colleges with one-third in junior colleges. Almost all (93 percent) of the programs in 2-year colleges were in public institutions, whereas only a little over half (55 percent) of the cooperative programs in senior colleges were in public institutions.

The rate of growth of cooperative education programs has escalated sharply in recent years and over three-quarters of the programs now in existence have been established since 1960 (Wilson 1972). By decades, the rate of growth of cooperative programs is as follows for junior and senior colleges.

Distribution of Operational Programs by Year of Initiation

Year Program Initiated	Senior Colleges	Junior Colleges	Total
1906-1930	11.5%	1.4%	8.3%
1931-1940	2.7	1.4	2.3
1941-1950	4.1	4.4	4.2
1951-1960	12.8	4.4	10.1
1961-1970	52.0	62.3	55.3
1971-1972	16.9	26.1	19.8

Source. Wilson 1972, p. 12

With one-fifth of the programs established in the single year of 1971-72, cooperative education can probably be considered one of the most rapidly growing curricular innovations in higher education.

Why did it take so long for the cooperative education movement to gain momentum? Ferris (1969) gives three reasons: Lack of outside funding; the major effort necessary to organize the program; and the general distrust of cooperative education on the part of faculty members.

The growth spurt of cooperative education can probably be attributed to various kinds of federal encouragement, but as Heermann (1973) points out, federal funding is partial and it also has limits as far as time and amount are concerned. "In the long run," Heermann advises, "cooperative education which is a bona fide part of the college program must be regarded as a regularly budgeted item" (p. 11).

Only time will tell how well programs given the initial nudge by Federal funding will survive. All signs point to a future at least as successful as the past. Ferris (1969) recounts the remarkable success rate of cooperative education programs:

> Before the war, eight out of ten colleges that started programs still had them in 1942, and of those that started programs after the war, nine out of ten still have them. When you consider that a number of these institutions were either new or in serious financial trouble, the degree of success is even more remarkable—so remarkable, in fact, that it's difficult to understand why the growth has not been faster (p. 481).

Structure

Cooperative plans come in all patterns and sizes. Some institutions offer the cooperative experience in only one or to departments—typically engineering and business administration—whereas other institutions require all students to participate. Some programs em-

phasize career development, some career exploration, some personal growth and experience. Alternate work periods may be scheduled by the semester or by the halfday or any of a number of calendar variations. The work experience may be considered in the same way as classroom experience and be granted academic credit or it may be recognized as a different kind of learning experience and additive credit awarded. There is no one model that is considered exemplary, and the literature contains relatively few advocacy positions for any given design. The advocacy in cooperative education is for the philosophy of the concept rather than for the specifics of implementation. Writers and speakers on cooperative education generally want to communicate their enthusiasm for the idea, but they are content to recommend that the design of the program be implemented in accordance with local needs. Nevertheless, there is considerable information in the literature on various structures and models of cooperative education. The interested reader can find all he wants to know in three general up-to-date resources: the *Handbook of Cooperative Education*, by Asa S. Knowles and Associates (1971), *Cooperative Education in Community Colleges*, by Barry Heermann, (1973), and the *Journal of Cooperative Education* issued by the Cooperative Education Association twice a year in May and November. For the more casual reader who wishes a broad overview of the variables to be considered, this review may serve to give an understanding of the state of the art of model building in cooperative education.

Wilson (1972) probably has the most up-to-date survey material on present practices. He sent a questionnaire to 317 colleges and universities known to be operating or planning cooperative education programs. He received 243 usable questionnaires from the 2-and 4-year colleges for a response rate of 77 percent. The following discussion will be built upon a foundation of present practices as reported by Wilson with information and observations from other authors incorporated as appropriate.

Purpose

The principal purpose of cooperative education at this time remains where it started historically, with the focus on career development. Eighty percent of the senior colleges and 83 percent of the 2-year institutions endorse as primary goal of career development, with only small minorities (11 percent of the senior colleges and 10 percent of the junior colleges) opting for a first priority of personal and cultural growth for students.

While such statistical presentations have the advantage of helping us to see central tendencies, they obscure some equally valid realities. Some believe, for example, that helping a young person to develop career competencies is one of the most important routes to self-confidence and personal development, especially for low academic achievers (Cross 1971). Those holding such a position would be hard-pressed to make the choice asked for on the questionnaire between career development and personal growth. Advocates of personal growth and career development might, however, find themselves in agreement that the development of specific career competencies (for future employment or for developing self-confidence) should have a higher priority than career exploration, for example. But which aim is most important depends primarily on the student. It is highly desirable to have the flexibility that permits placing an insecure low achiever in a position where he can develop real competencies—perhaps for the first time in his life—whereas one might wish to place a self-confident student, eager to test himself in a variety of situations, in a program oriented toward career exploration in a number of jobs.

Heermann (1973) is especially concerned lest community colleges adopt existing models that have been successful for university or secondary programs but that are not designed for community college needs. He urges community colleges to take advantage of their "clean slate" to design a pattern supportive of the distinctive philosophy of the college, and he suggests seven "co-opportunity clusters" from which students might choose within the two broad categories of occupational and personal development. The *occupational* clusters are occupational commitment, occupational exploration, occupational with professional orientation or occupational advancement. In the *personal development* group there are three purposes—exploration, goals identification, and basic skill development. Each cluster is presented in a flow chart complete with student objectives and program outcomes. Heermann's models are clearly student-centered guidance models. They have implications for the organization and administration of the program to which we shall turn attention now.

Administration and Organization

Wilson's survey showed that the most common administrative arrangement for cooperative education programs is a centralized office (66 percent of the senior colleges and 61 percent of the 2-year institutions) reporting to the academic vice president (51 percent of the 4-year and 42 percent of the 2-year colleges). The 2-year colleges are

more likely to be decentralized departmentally than the 4-year institutions, probably because of the vocational emphasis of many 2-year programs. But at the same time, community colleges are somewhat more likely to place the cooperative program under the direction of the vice president for student affairs (13 percent), which would seem to encourage a student-development emphasis to the program. According to Wilson's figures, only 8 percent of the cooperative education coordinators in senior colleges report to the vice president for student personnel.

When cooperative education was young and struggling to gain acceptance, the path to academic respectability was through the academic vice president and many—probably most—would feel strongly that for reasons of prestige as well as faculty commitment and faculty concern with professional training, responsibility should continue to reside in the office of academic affairs.

There are, however, some good reasons to give some serious attention to the role of the vice president for student affairs and/or dean of students in the cooperative education program. For the small college especially, the office of the dean of students already has professional staff trained in the various components required in the administration of cooperative education programs. Counseling, placement, financial aid, community liaison, and the personal growth and development of students have long been responsibilities of the dean of students. Furthermore, with colleges moving away from *in loco parentis*, on-campus student activities and housing and student governance (to be replaced by community governance), some colleges are wondering how to utilize the talents of student personnel professionals whose jobs seem to be diminishing in responsibility. Colleges might, it seems, give some attention to solving two problems simulaneously—easing the shortage of skilled co-op coordinators by using student personnel staff with training and experience in some relevant areas and taking up any slack in the student personnel area caused by changing conditions. In any event, Dawson (1971) cautions:

> Regardless of its placement in the administrative hierarchy, however, the cooperative education department must have a close and unhampered working relationship with student counseling, financial aid, and other student placement (part-time and graduate) (p. 49-50).

Knowles (1971d), who works with the huge cooperative program of Northeastern University that involves some 20,000 students and 1,800 employees, observes that some programs may need a special vice presi-

dent for cooperative education and an organization of trained specialists. Dawson (1971) suggests that a dean of cooperative education might have an administrative status in community colleges equivalent to the dean of academic affairs and the dean of student services. Heermann (1973) presents the pros and cons of various organizational models, and it is probably the most thoughtful and helpful discussion available. Although he directs his book to community colleges, his analyses apply equally well to senior colleges.

Whatever the particular organizational plan, all writers emphasize the importance of the support of the total educational community. Knowles (1971a) has observed that:

> One of the difficulties encountered in cooperative education programs over the years has been the lack of support, and at times outright hostility, toward the system itself on the part of some faculty members . . (p. 228).

Carlson (1973) after 30 years of teaching in the cooperative education program at Antioch also stresses the importance of faculty support. He warns:

> Suppose that a cooperative or experience based program is undertaken in a college but the classroom teacher is indifferent or hostile to the idea. From his point of view only academic courses taught and administered by qualified teachers can legitimately contribute to the students' education, capped by the degree. A college instructor is a free agent in the classroom and he can undermine students' confidence in the educational validity of their work experience (p. 2).

Carlson also gives some practical advice on how to obtain the continued cooperation and involvement of faculty members. Most cooperative programs require a report from the student after returning from his job. One copy of the report can be given to the faculty advisor to help keep him informed about the nature of the work experience and to help him know individual students better. As Carlson remarks:

> Students are generally motivated, and apathy dispelled, if an instructor shows a genuine interest in them as persons. . . . Furthermore, the fact that I learned something from the reports was gratifying to the students (p. 4).

Carlson also advocates a period of service for faculty members in the administration of the cooperative plan where they call on employers, assign students to jobs, and counsel them before and after work assignments.

Tucker (1969) describes the heavy involvement of faculty in England. He writes:

> The most outstanding feature of the British program in my estimation is the fact of almost total involvement of the faculty in the industrial visitations. Even department heads visit students on the job. Not only is the work load spread around but this makes possible more plant visitations. It decidedly affects the content and flavor of the university courses (perhaps the greatest gain). Research ideas and needs for short courses also follow from these contacts (p. 40).

Program Structure

Program structure can vary greatly from program to program in terms of student eligibility and calendar. Wilson's data (1972) show that senior college programs tend to select students for participation (50 percent) whereas junior college programs tend to be freely elective (34 percent), but 20 percent of the junior college and 13 percent of the senior college programs are mandatory.

Historically, cooperative education has been an institutional commitment in some of the oldest and best known programs, e.g., Antioch and Northeastern. But as the concept has spread so have the variations on the theme, and as the Wilson data indicate, relatively few programs now involve total institutional commitment despite the conviction of some that this is the educationally sound position (Dawson 1971). But mandatory programs may be making a comeback. There has been recent interest in the cooperative concept for educationally disadvantaged students among a variety of colleges looking for more relevant education for their new clientele.

La Guardia Community College is one such college. It is located in a blue-collar poverty district just across the East River from midtown Manhattan. Their mandatory cooperative education program is being watched with considerable interest by community colleges across the country. Students work at fulltime jobs for three of the eight quarters they attend La Guardia, and the college runs on a 12-month basis. Freshmen take courses for two quarters and then have jobs for one of the next two quarters. In the second year, students work two quarters and study two quarters so that half of the class is in school and half out on jobs at all times. So far, enthusiasm is reported high. One administrator is reported saying:

> There's no doubt in my mind that parents in this community like this kind of college. They're ecstatic about the idea of kids making money while working for degrees. The kids are excited, too, some because they need to make money and others because they don't know what they want to do and welcome a chance to sample jobs (Binzen 1973, p. 36).

Wilberforce University, a private, black, 4-year college in Ohio restructured its entire curriculum to incorporate cooperative education 8 years ago and reports an enrollment of 1,200 students, all on the

cooperative education plan, working for more than 200 employers. Mary Holmes College is a different kind of black college. Unknown and without a reputation, it is "a poor school serving ill-equipped and ill-prepared black students from Mississippi" (Meacham 1969, p. 574). They were able to start their co-op program with college work-study funds, since all of their students qualify for such assistance. The College of Human Services is another example of a college with a special dedication to the needs of urban and minority people. It is a special-purpose institution in New York City designed to upgrade the skills of poverty women and at the same time help the community by employing students and graduates in service agencies of the city. An essential part of its educational philosophy involves the union of work and study (Cohen 1970).

Perhaps the major difference between junior and senior college co-op plans is to be found in calendar variations. There is no surprise in the fact that Wilson's data (1972) show that junior colleges offer mostly parttime programs (51 percent) where a student studies and works simultaneously during the week: whereas senior colleges (77 percent) opt for alternating blocks of work and study that may be based on semesters, quarters, or other fairly extended periods of time. Nationally, students attending 2-year institutions are much more likely to begin the work experience in the first year (72 percent) than are students attending 4-year institutions (18 percent).

There are so many variations on the calendar that may be used in a co-op plan that it would defeat the purposes of this review to go into detail. Excellent discussions of the full range of possibilities can be found in John Chase's chapter (1971) on baccalaureate programs in the *Handbook of Cooperative Education* (Knowles and Associates 1971), and in Barry Heermann's book (1973) *Cooperative Education in Community Colleges.*

Suffice it to say that the calendar chosen will have, or should have, direct relevance to the local situation and to the institutional philosophy of the cooperative education program. In some vocational programs, for example, it would make no sense to separate work and study into long blocks of time since the practice of skills in the work situation is a critical part of the educational program. On the other hand, certain preprofessional experiences such as anthropology field work or oceanography might be so distant geographically that only a long work period could be financially justified.

In England, the two major variants are the "thin sandwich" which alternates 6 months of study with 6 months of employment and the

"thick sandwich" where the first 2 years are spent in the university, the next on the job, and the fourth and final year in the university (Smithers 1971).

There is no reason, of course, why a college cannot have many scheduling options going simultaneously. The San Mateo plan, for example, offers three options. There is the alternate semester plan in which two students hold one full time work station on a year-round basis. The parallel plan is the more typical 2-year college plan where students hold part time jobs with appropriate class loads. The evening college new careers program is the third model at San Mateo. It involves full-time employment with special arrangements made for studies appropriate to the new career goals of students (Bennett 1969).

Not all calendars are created for the sole convenience of students and colleges. Employers, too, may make unusual demands or offer unique opportunities with respect to calendars. Heermann (1973) cites the retailing internship program of Grahm Junior College in Boston where the work experience runs from Thanksgiving through Christmas. It should be easy to attract retail employers to that program.

Calendars are also affected by the problems associated with lengthening the students' program. Some bachelor's degree programs may require 5 years to complete whereas others will opt for a year-round program so that the student will not be delayed in moving into fulltime employment.

Credit

One of the most significant signs that cooperative education is a flourishing educational reform is found in the data showing trends in the granting of credit for cooperative work experience. Wilson conducts an annual survey of institutional practices with respect to cooperative education. In each of the four surveys conducted from 1969-1972 (Wilson 1969, 1970b, 1971b, 1972) a distinction was made between "nonadditive credit," which is bona fide academic credit, and credit that is added onto the requirements for the degree. The trend is clearly to regard the cooperative work experience as equivalent to classroom study. In 1969 only 18 percent of the institutions granted academic credit; in 1970, it was 25 percent; in 1971, 35 percent; and by 1972, 46 percent of the institutions surveyed were granting nonadditive credit. The trend is especially apparent in 2-year institutions, where 69 percent of the colleges award nonadditive credit compared to 40 percent for the senior colleges (Wilson 1972).

The cooperative education professional associations strongly endorse academic credit for the work experience (Opperman 1971: Borman 1972). And further progress is likely to be made when the joint CEA/CED (Cooperative Education Association and Cooperative Education Division) Committee completes its work on developing a set of criteria to determine how academic credit should be awarded. At present, the typical co-op student earns three to four units of credit per term. Two-year institutions are more generous with credit than 4-year colleges and universities. Sixty-three percent of the junior colleges and 36 percent of the senior colleges award three to four units of credit per term while 31 percent of the senior colleges and 18 percent of the junior colleges award one or two units per term (Wilson 1972). Both types of colleges, however, are likely to collect tuition at the regular rate during the students' cooperative work experience (65 percent for senior colleges and 60 percent for junior colleges). In approximately one-fourth of the work situations, the employer refunds the tuition as part of the fringe benefits of employment (Wilson 1969a).

Advantages of Cooperative Education

Anyone wishing to sell the concept of cooperative education to almost anyone can find ready-made lists of advantages accruing to almost everyone—students, colleges, employers, and the community (Tyler 1971; Heermann 1973; Bennett 1969; Wilson & Lyons 1961; University of the Pacific n.d.; Rauh n.d.). The movement does not suffer from false modesty, but it must be admitted that the arguments appear sound, and some of the claims have been documented through research.

Research on cooperative education is in a primitive state, however. What research there is (and there is not very much considering the age and the educational promise of cooperative education) is descriptive rather than evaluative and testimonial rather than behavioral. Wilson (1969b, 1970b, 1971b, 1972) has provided a service to the field by conducting an annual survey of participating instiutions and their practices, but his work is more in the nature of communication than of evaluation. It tells us what colleges are doing about cooperative education, but it doesn't tell us much about what cooperative education is doing for students and for colleges. I think it is fair to say that with the exception of a small group of scattered minor studies, no substantial effort has been made to evaluate the fairly extravagant claims of cooperative education since the Wilson-Lyons study of 1961. In the opinion of this reviewer, some good research on cooperative education

should be a Number One priority for the educational community—not only because of the escalating interest in the plan on the part of colleges but more importantly because such research would help to illuminate some basic principles of education and its impact on students.

For the purposes of this review, it may be most useful to simply list the presumed advantages of cooperative education that have been cited in the literature. We shall follow the pattern adopted in the literature and synthesize the arguments under three headings: advantages to students, advantages to colleges, and advantages to employers. Where possible, research evidence supporting (or refuting) the claim will be presented.

Advantages to Students

1. The most frequently cited advantage of cooperative education to students is the increased meaning that the work experience brings to academic study. Ralph Tyler (1971) expresses the point succinctly and well when he writes that students are helped to find meaning in their studies:

> . . . because the theories and principles learned in the classroom are reinforced and given concrete application on work assignments and because they increasingly perceive, as their experience continues, the relevance of what they are studying to the situations they encounter while off campus on the job (p. 19).

This claim is difficult to substantiate but three basic research approaches have been used—faculty observations about students, the feelings of students about their experiences, and the measurement of student achievement.

Over half (52 percent) of the faculty surveyed in the Wilson-Lyons research (1961) "clearly agreed" that co-op students were more involved and motivated in their studies, while another 17 percent "tended to agree." Faculty were also supportive of the claim that co-op students develop skill in applying theory to practice; 42 percent "strongly agreed" and 31 percent "tended to agree." Strangely enough, 95 percent of the liberal arts faculty saw evidence of student integration of theory and practice whereas only 68 percent of the engineering faculty did.

The second way of testing the truth of the claim that work experience adds meaning to academic study is to ask students to assess their own experiences. Gore (1972a) cites an unpublished study by Lelievre

who found that 85 percent of the accounting graduates of the University of Cincinnati thought that their cooperative work made their academic work more meaningful. However, Smithers (1971) reports different student reactions in England. Students initially expected industrial training to give them the opportunity to apply theory in practice, to learn about the latest developments in their field, and they were confident that the work period would not interfere with study. But as students progressed through their programs, their reactions to the *intellectual* aspects of England's "sandwich" plan deteriorated even though items concerned with social and organization learning improved with experience in the program. Smithers concluded that the work experience tended to become a period of *parallel* education and that there was a failure to truly integrate the college and industrial periods in any intellectual way. These findings remind us that work experience per se is not necessarily educational and add further impact to the insistence of most leaders in cooperative education that teachers, students, and employers must work to make it a total and integrated educational experience.

Another way to measure the impact of work experience on the intellectual development of students is to use measures of academic achievement such as test scores and grades. The classic study on the effect of work on academic achievement was conducted on 65,000 students participating in the National Youth Administration (NYA) program in 1938-39. That study concluded that working students received higher average grades than the general student body (Federal Security Agency-War Manpower Commission 1944). And more recent studies tend to confirm these earlier findings. Gore (1972a) cites an unpublished study at the University of Cincinnati showing that seniors in the co-op program of the College of Business Administration made somewhat higher grades and scored higher than non co-op students on the Graduate Record Examination. Wilson and Lyons (1961) also reported better test scores on GRE Advanced Engineering tests for co-op students, and Yencso (1971) found that co-op alumni reported higher grades than non co-ops. What we don't know from these studies is whether better students are attracted to cooperative education in the first place or whether the better achievement is the result of cooperative education.

A well controlled matched sample design study by Marks and Wohlford (1971) reported mixed results. While co-op students had better grades than non co-op students, the difference was most pronounced in the freshman and sophomore years. According to the authors, this

may indicate that the more highly motivated and career-committed students opted for the co-op program in the beginning. As the non co-ops began to "find themselves" in the junior and senior years, the grade gap decreased.

A somewhat different explanation was offered for the good academic performance of work-study freshmen at the University of Colorado. These high-risk students achieved better academically than did the freshman class as a whole. The investigators attributed the superior performance to the more effective organization of time on the part of working students (Adams & Stephens 1970).

In summary, there is some positive evidence that the cooperative work experience does add meaning and enrichment to classroom learning, but the research is far from adequate. It lacks controls, sufficient numbers and varieties of programs and students, and we need improved measures of educational impact.

2. The second most frequently cited advantage of cooperative education to students is the opportunity for career exploration. The cooperative experience permits students to try several jobs against their interests and talents and to observe the work of others involved in various careers. It is contended that such information will help the uncertain student and will confirm others in their choices, and if they find they have made an unwise choice, they can replan their educational program in a more appropriate direction.

The career exploration value of cooperative education has special relevance for minority groups—both ethnic minorities and women. Knowles (1971b) has emphasized the value of work in large corporations, government offices, and scientific firms for minority youth, pointing out that such employment is rarely available to summer or part-time workers, especially minority youth. McKinney (1971) stresses the importance of the contact of minority students with whites and with minority people who have succeeded in the larger society. Cooperative education, she feels, "can be the means of broadening contacts and enlarging visions of disadvantaged youth" (p. 273). Van Sickle (1971) argues for the value of job exploration for women in areas previously considered closed to them. In addition to the exploratory opportunities for students, cooperative work experience offers employers the chance to see minority youth and women in jobs where they have not envisaged them before. The temporary nature of the cooperative job may encourage both employers and students to try new career roles.

Research on the efficacy of cooperative education for career exploration is scarce. Wilson and Lyons (19[illegible]) reported that 66 percent of the co-op students said that their work experience was more likely to help them make a career choice than anything else their institution had done in the way of vocational guidance. Non co-op students who had not had the benefit of cooperative work chose orientation classes (21 percent) or class assignments requiring career exploration (21 percent), and career information provided by the faculty (12 percent) as their most helpful experiences. Gore (1972a) offers some student testimonials regarding career exploration: "You find out, first, what you don't want to do when you graduate. That's a big thing." From another student, "It gave me a rotation through other areas of the organization. This is something people often don't get in business" (p. 10).

The Wilson-Lyons data show an advantage to cooperative work experiences over other work experiences where students get jobs on their own. Eighty-eight percent of the co-op students said their work experience had clarified educational and career goals, compared to 74 percent of the non co-op students with other kinds of work experience. The figures were in the same direction when students were asked about the value of work to test vocational aptitudes; 84 percent of the co-op students and 70 percent of the non co-op student workers endorsed the test of abilities as an advantage of the work experience.

While career exploration as a claimed advantage of cooperative education makes perfectly good sense and is positively supported by the very little research available, the way in which jobs are assigned probably makes all the difference. If jobs are regarded as financial aid or cheap labor or if the student gets stuck in a narrow track in his job assignments, career exploration will not be a likely outcome.

3. Another value for cooperative education claimed by almost all writers is the personal growth and maturity of students that takes place when the student participates in the world beyond the campus walls. Wilson (1971a) makes the rather sweeping assertion that:

> The data now available about the impact of cooperative education upon students suggest a far more adequate explanation of the value of cooperative education than that ascribed early in its history. Because it places the student in new and challenging situations demanding of him efforts and new modes of behavior, cooperative education makes a strong contribution to growth of the individual student in his personal development, his social development, and his career development (p. 15).

While this reviewer has been unable to locate data that led to this conclusion, there is probably little reason to question that students would

make gains in maturity and responsibility from the experiences of adjusting to job demands and, in the case of block work periods in another city or country, establishing a life independent of close adult supervision. While one can argue that the student would have to develop independence on his first job anyway, the point is that earlier development brings a certain maturity to the college experiences. For example, faculty in the Wilson-Lyons sample observed that students raised more questions and were more insistent upon being "shown."

Marks and Wohlford (1971) demonstrated that as students progressed through the cooperative experience, they showed increased maturity in moving from extrinsically motivated job satisfactions (social opportunity and prestige) to intrinsically motivated ones (intellectual achievement and democratic leadership style). As students continued in the cooperative program, they also showed "a marked increase in autonomy, self-reliance, independence of thought and action, and more freedom from social pressures" (p. 823). The difficulty with this research is that most college students show the same trends toward maturity as they progress from freshman to senior years. For this aspect of the Marks-Wohlford study, there is no control group to indicate whether co-op students show greater improvement than other students.

There are some reasons for thinking that the cooperative work experience may be especially important to the self-esteem of educationally disadvantaged youth (Cross 1971; Dawson 1971; Tyler 1971). Dawson (1971) writes that:

> The educationally underprepared student, who rarely has a history of standard academic achievement, will usually at the start do better on a cooperative job than he will in his studies. Successful work experiences may well add motivation for academic effort and accomplishment. The self-confidence that comes from well-designed cooperative experience adds to the student's will to succeed in college, especially when teachers and counselors help him to relate learning from work to academic planning and classroom studies (p. 44)

I have been especially concerned about the "fear of failure" syndrome that the narrow emphasis on academic talent has generated in below-average students all the way through the school system. I have suggested that work experience may be more important psychologically than financially to low achievers, since even with financial need held constant, low achievers are more likely to express a desire to work part-time during college than high academic achievers (Cross 1971).

Research on the value of cooperative education for personal growth and maturity is a fertile field for exploration. It has not been plowed. Even Wilson and Lyons made only a passing attempt to evaluate it, and those data are now quite old. When faculty were asked to list the advantages and disadvantages of the cooperative experience, 20 percent cited the development of mature judgment, and lesser percentages volunteered advantages that were categorized by the investigators as more effective human relations (14 percent), greater self-confidence (4 percent), and greater initiative (1 percent). The one advantage of work experience given by virtually all students—co-op or parttime conventional students—is that having a job helps develop human relations skills; 96 percent of the co-op and 92 percent of the non co-op students reported growth in that area. Smithers (1971) asked students to evaluate their personal growth experiences and reported that a group of civil engineers taking sandwich courses in England felt they had developed self-confidence in dealing with people, but textile technologists did not. Both groups felt that they had developed self-confidence in tackling technical problems, however.

4. Financial aid to students is the fourth advantage frequently mentioned for cooperative education. For some students, college would be impossible without the earnings from a job, and the assurance of a job throughout the college years is a critical factor in furnishing the financial security to continue a college education for many students. Wilson and Lyons found that 10 years ago, when cooperative programs were quite rare, there was a substantially larger proportion of co-op students from families of the lower socioeconomic strata in co-op programs than in conventional programs. They suggest, as does Binzen (1973), that the predominance of young people from working class families in cooperative education programs fulfills financial needs but also work ethic needs of these youth and their parents.

Many cooperative coordinators wish to minimize the monetary aspects of cooperative education, but of course students do earn money —at the rate of $280,000,000 per year according to Wooldridge (1973). This is a healthy financial aid package by any standards. Wilson and Lyons (1961) found major differences in the amount of family support provided for co-op and non co-op students. Most co-op students depended on family for less than 30 percent of their total educational costs whereas most non co-op students got more than 50 percent of their educational costs from family.

In a little different approach, Rauh (n.d.) computes student costs for conventional students (working summers) and for co-op students

and concludes that by the time expenses associated with the cooperative job are computed, the savings are not really very dramatic. We can't tell when his figures were computed, but he gives the net cost per year at an institution charging $2.100 tuition as $2,800 for the student with the summer job and $2,120 for the co-op student. If, however, the student is getting a better education for less money, we can count as an advantage even modest savings.

5. Finally, there has been much talk and some research on the head-start that cooperative education presumably gives the student in his career. The usual hypothesis is that the early work experience will put him further up the career-ladder than his unexperienced friends. Students quoted by Gore (1972a) seem to agree:

> The co-op experience was helpful to me because it gave me a head start on everything right off the bat compared to the average non co-op student who would have to learn from scratch certain things.
> The benefit to me of the co-op experience rested in the fact that the day I went to work after graduation I knew what had to be done and how to go about it. It wasn't just the matter of the theoretical approach. I didn't need much supervision. I would just step in and handle the men and coordinate the efforts. I knew how to get things done—the practicality of knowing how to do a job and work with men in the field (p. 10).

In his compilation of the data, however, Gore (1972b) found that the co-op student has neither a monetary nor a positional advantage over the fulltime student at the time of graduation. Fager (1969), however, reports a salary advantage for co-op students for three successive years in the annual surveys of the College Placement Council. The research evidence regarding any continuing advantage to the co-op graduate is just as equivocal. Gore (1972b) found that co-op students were ahead of others on salary and position 5 years after graduation. If this finding were borne out in further research, it would indeed be a powerful argument for the cooperative experience. It would mean basically that students didn't simply get off to a running start that would narrow as other non co-op graduates learned on the job, but that co-op students learned something enduring from their experience. Gore's research design is not rigorous enough to answer that question definitively, and the earlier Wilson-Lyons research showed no significant differences between co-op and non co-op graduates on first job placement or salary or on later responsibilities or job satisfactions. Yencso (1971) also reported no difference between co-op and non co-op alumni on job satisfaction, salary, career objectives, or the utilization of their professional knowledge.

In summary, we conclude that the purported advantages of cooperative education for students *seem* to be substantial and significant ones. But while the arguments are not refuted by research, neither are they confirmed by objective data. There is a need for substantial, well-designed research regarding the impact of cooperative education on students. Existing research is, for the most part, scarce, lacking in adequate controls, limited in scope to a single institution or a single field of study, and out of date. The educational concepts involved in cooperative education are interesting enough to stimulate some creative research on the educational process as well as the more descriptive research regarding student and program characteristics.

Advantages to Colleges

1. A major advantage of cooperative education plans to colleges is that it permits them to offer an enriched program of education to students. Some aspects of this advantage have already been discussed under advantages to students, but the literature reveals some other facets of the opportunity to improve education.

Bennett (1969) mentions the opportunity to expand curricular offerings beyond those possible on campus. Some vocational programs, for example, require development of student skills through actual practice. And there are other instances in which the services of adjunct faculty might be utilized to present specialized knowledge that the institution could not afford without a cooperative program. Small groups, too, can be provided special or unique opportunities that would be prohibitively expensive on campus.

Heermann (1973) also mentions some institutional advantages in the quality of education that were not discussed under advantages to the student. He points out that the nature of the counseling task with students is made more realistic as students begin to relate education to their futures. In the counseling sphere as well as in the academic area, students are made more aware of their weaknesses and strength—in vocational choice, in human relations skills, in identity formation, in exercising independent judgment, and others. The alternating periods of on-campus and off-campus learning offer opportunities to discuss these problems with professional personnel.

Another opportunity that cooperative colleges offer is the chance to continually revise and renew the curriculum so that it is responsive to student, community, and societal needs. This point involves more than good community relations, often a side-benefit of cooperative education plans. The input from students returning from coopera-

tive experiences, from employers, from the community advisory boards[1] that most cooperative plans have helps lend perspective to the total educational offerings of the institution. Heermann (1973) says that:

> Efficiency and effectiveness of programs is no longer a remote and nebulous undertaking determined after the fact, as the adequacy of programs can be judged on a regular and continuing basis (p. 70-71).

This reviewer has been unable to locate any research confirming or refuting these presumed stimuli for improved educational processes. Wilson and Lyons (191) did administer a college environment survey instrument (The College Characteristics Index), but they found little to distinguish cooperative from noncooperative programs. But theirs was a descriptive survey, and they did not formulate the hypotheses on which cooperative colleges are expected to differ from conventional colleges. Do colleges on the cooperative plan actually offer specialized curricula or special opportunities to small groups of students or do they just channel students into existing curricula and job slots? Is there a conscious attempt to individualize programs and to offer new flexibilities? Are cooperative institutions more likely than others to engage in curriculum revision?[2] Do counselors have any evidence that co-op students are using their services in a different or more significant way than other students? We don't know. The stimulus and the opportunity seem to be enhanced by the cooperative plan, but colleges are free to ignore both, and this advantage may be possible but never realized.

2. Faculty awareness of new developments in their field is a frequently touted advantage of cooperative education. Heermann (1973) claims that:

> Faculty members . . . go through a kind of continual in-service training program which alert (sic) them to the requirements of the real world and the latest developments in their specialization. These on-going contacts with practitioners allow for a qualitatively superior and more 'in-the-know' faculty (p. 71).

Once again, we have to admit that the opportunity for faculty to keep up in their fields is enhanced by cooperative education, but do we

[1] See Barlow (1965) for an extensive discussion of advisory boards.

[2] Heermann (1973) reports that LaGuardia Community College has in fact changed its data processing program in the light of feedback from the cooperative education staff.

have any evidence that they are more up-to-date? Wilson and Lyons (1961) asked faculty to answer an open-ended question about how their classroom teaching was affected by the cooperative work experience of their students. Twelve percent gave no answer and another 22 percent said they had observed no effect on their teaching. Only 13 percent mentioned that they had to keep up with new developments in their field. The evidence for more alert and up-to-date faculty members is not exactly overwhelming. Nevertheless, the question remains an open one since very little research exists on the subject.

Carlson (1973 claims that he was "sure (he) was a better instructor" after 6 months experience of calling on employers, assigning students to jobs, etc. Is it desirable to use faculty in field visitations or do we get about the same result if we depend on student feedback to keep faculty alert to developments in the field? I don't think anyone has investigated this quite practical question.

Another way to research the question of superior faculty in cooperative plans is to use student ratings of faculty. But this research is not really very adequate either. The Wilson-Lyons study asked for student evaluations of the instructor's approach to subject matter. Unfortunately, it was students who were categorized as co-op or non co-op whereas the more important classification for answering questions about faculty quality would be co-op or non co-op faculty, Nevertheless, their results showed a mixed picture, more dependent on field of study than upon student cooperative status. Liberal arts seniors in the co-op program rated their teachers higher than non co-op students: co-op engineering seniors were more likely than their non co-op peers to criticize their instructors for an over emphasis on practical matters, whereas senior co-op business students were more likely than non co-op to be critical of instructors for too much attention to general principles.

Once again, we emphasize that the effect of cooperative involvement is a fertile field for research.

3. Another argument used to illustrate the advantages of cooperative education to colleges is that of improved community relations. Tyler (1971) writes that:

> If a cooperative college is located in or near a metropolitan area and places its cooperative students with local employers, the college tends to become more closely allied with the community. As a result, in many communities positive cooperation has been substituted for the negative features of town and gown misunderstanding (p. 23-24).

Heermann (1973) lists several advantages related to college-community relations including interchange among faculty, students, administrators and community leaders, clarification of college function to the community, familiarization of employers with the skills of community college students, and provision of information about college programs to potential students in the community.

To date, no research has come to light that would show whether communities with co-op colleges in them understand or appreciate the purpose of the college more than lay people in conventional college towns. While Wilson & Lyons (1961) report that employers are enthusiastic about cooperative education, we don't have any comparative information that tells us whether employers (who presumably have considerable interaction with the college) understand the college and are more supportive of it than say parents or older students or people who come to concerts or football games on campus.

4. The more efficient use of college facilities is another advantage claimed for cooperative education. Rauh's (n.d.) management analysis of cooperative education states that:

> With a portion of the student body off campus all the time, an equivalent increase in enrollment is possible. If the academic year is extended to a full calendar year, still more students can be accommodated. [Furthermore] the increased enrollment can be served without proportionate increases in costs. Since costs under co-op plans do not rise in direct proportion to the large number of students and the longer academic year, an increase in productivity is possible" (p. 1).

This argument has less appeal now with student enrollments leveling off than it did earlier when colleges were struggling to keep up with enrollment expansion. Colleges fortunate enough to have an excess of students may get some help from reading Harrison's (1961) presentation of an economic analysis of the effect of various cooperative schemes on the efficient utilization of resources.

The argument related to resource utilization that will have more appeal to colleges in today's financial squeeze is the one described by Heermann (1973) as the "facilities are 'on the house'" (p. 69) With equipment getting more complex, more expensive, and more quickly obsolete, the opportunity to use the equipment of industry is a big plus. Some programs would be prohibitively expensive without the cooperation of industry.

5. Finally, cooperative education is said to be an advantage in the recruitment and retention of students.

I have demonstrated elsewhere (Cross 1971) that the major source of new students to higher education will come from among students graduating in the lower third of the high school classes—socioeconomically and academically. If colleges wish to expand their enrollment in an era of shrinking birth rates, they will have to attract a higher proportion of youth to college. Since most high SES, high ability youth are already in college, any increase must come from "new students." Research shows that this group of young people is highly career oriented and they express considerable interest in the concrete practical application of knowledge that cooperative education stresses (Cross 1971). The financial advantages of cooperative education are also of significance to this group of young people. La Guardia Community College has found that their cooperative education plans have a high appeal to both students and parents in their blue-collar locale (Binzen 1973). Furthermore, the tight labor market is making even traditional college students and their parents more interested in career preparation. It appears that the cooperative plan should be a great advantage in student recruitment right now. This hypothesis would be an easy one to verify by a comparative study of the applications to comparable types of colleges with and without cooperative education programs.

To the knowledge of this reviewer, no recent comparative study has been made. The small, traditional, liberal arts colleges appear to be having the greatest difficulty attracting students today (Glenny 1973). Some of them might gain student interest upon establishing a cooperative program.

Advantages to Employers

1. The most common advantage given for employers' participation in cooperative education is recruitment of future workers. Not only does the employer have an opportunity to interest promising young people in his field of work, but he has an opportunity to screen temporary cooperative employees for their desirability as permanent employees, and for their promise as future supervisory personnel (Bennett 1969). Furthermore, if co-op students have had a good experience in a company, they serve as ambassadors of good will to their peers. Heermann (1973) makes the point that employee turnover is reduced, since the co-op student has already had a chance to examine the suitability of the job. Research indicates that a substantial proportion of co-op students do accept employment with a company they worked in as a student. The hypothesis that they remain with the firm longer than other employees is unverified by research. Yencso (1971)

found that 74 percent of the co-op alumni 5 years out of college were still with their first employer compared to 70 percent of the non co-ops, an insignificant difference.

2. Most authors feel that co-op student workers have a desirable impact on other employees. Brown (1971) claims that:

> Co-op students have a positive effect on the productivity of their co-workers. They are highly motivated and career oriented. They will be the people with the most current information on their particular occupation. Those who supervise on-the-job experience often learn from the students they are training (p. 7).

Not only do other employees become learners, but it is suggested that supervisors also gain satisfaction from their role as teachers. Davis (1971 feels that "employers are eager to share in the students' education. Many supervisors welcome the chance to teach something in an employment setting . . ." (p. 142). The presence of students in the work force has one further advantage to both employers and colleges. It may stimulate other employees to seek further education to upgrade their skills (Heermann 1973).

3. A third general category of employer advantages is concerned with college-community relations. Good relationships between business and academic communities are held to be just as important to industry as to colleges. The businessman reaps good will for his participation in the education of the youth of the community, but he also has an opportunity to influence the education of his future employees. Businessmen who claim that colleges do a poor job of training youth for employment can influence the curriculum through students, faculty who visit the field site or talk with employers, co-op coordinators, and service on advisory committees.

On the whole, the advantages claimed for cooperative education are impressive, and they are logical enough to be believable. There is, however, very little demonstration of their validity. The fact that students have the opportunity to integrate theory and practice does not mean that they do so. Some of the evidence, as noted earlier, indicates that cooperative plans create parallel rather than integrated experiences. The fact that faculty can keep up with new developments in their field does not mean that they do. The fact that institutions can offer superior education to students through cooperative education does not mean that they will. Opening up the opportunities for improved education, however, seems to be well worth the effort—if the disadvantages or problems with cooperative education do not consti-

tute an unreasonable gamble. Let us move now to an examination of the problems.

Problems of Cooperative Education

The literature on the disadvantages or problems with cooperative education is neither as plentiful nor as explicit as that extolling the virtues. The relative scarcity of criticism may reflect the small size of the movement. It has not become powerful enough to pose the threat that stirs critics to counterargument, and it has not become large enough to create practical problems of finding jobs for students or finding coordinators to staff programs. It may also be that the high rate of success of cooperative plans to date has prevented us from learning from the mistakes of others.

Nevertheless, some cautions and problems have been voiced—usually with all the conviction of a dedicated advocate trying to be fair. One such defender points out:

> Cooperative education is neither an experiment nor an innovation; it is a program of proven worth. . . . Its benefits are known, and the problems it poses have already been encountered and solved by other institutions. It is not as important to ask whether cooperative education is an effective program as it is to ask whether it is compatible with a particular institution's goals and is appropriate for the students the institution serves (Davis 1971, p. 145).

The Committee on the Study of Cooperative Education is similarly confident. They write:

> Our review of these possible disadvantages led us to conclude that none of them is real when adequate coordination is provided both by the college and the employers and when the employers provide necessary stability to the employment opportunities for students. The values of cooperative education are very significant and the problems are soluble (Wilson & Lyons 1961, p. 10).

Despite the tendency of proponents of cooperative education to shrug off the problems, there is substantial consensus in the literature on what the problems are.

The most common caution is that a cooperative plan must have the support and understanding of the entire campus (Davis 1971; Knowles 1971d; Wilson & Lyons 1961; Rauh n.d.). Such precautions hardly seem uniquely related to cooperative education. It would be hard to imagine a curricular reform, no matter how modest, that did not make such demands. But the point is well taken that cooperative education is not just another curricular reform. It requires drastic changes—in calendar, in teaching styles, in administrative structure and staffing,

and in student orientation. Broadly speaking, the problems associated with cooperative education are of four types: failure to understand the educational philosophy of cooperative education; detrimental factors in the economy; changes required of individuals; and administrative problems.

Failure to Understand Educational Implications

Most writers on the subject of cooperative education admit that unless the groundwork has been carefully laid and communicated to all concerned, the educational advantages claimed for cooperative education can easily turn into disadvantages. Faculty or employers who fail to grasp the educational significance of the program can easily scuttle it—employers by taking advantage of student labor or by hiring students before they have completed college; faculty by derision of the practical or, more frequently, by "sheer indifference" (Davis 1971). Students can unthinkingly turn the opportunity for a broader education into competition for financial rewards if they fail to understand the educational reasons for the program. Wilson and Lyons (1961) found that coordinators of cooperative plans reported that their most pressing problem was the overemphasis by students on financial remuneration. Miller (1971) cautions that students are especially likely to stress noneducational aspects of the job when they are permitted or even encouraged to locate their own off-campus assignments, on the grounds that the disappointments and rejections show life as it really is. He quotes one coordinator as saying, "More than 90 percent of the problems develop with those students and jobs where the student found or developed the job himself" (p. 163).

Unless specific attention is given to the *educational* philosophy of cooperative education, students, faculty, and employers are all likely to look at the work component as just another job. Critics claim that this problem is more prevalent than most co-op idealists like to admit. There are dull menial jobs than can hardly be called valid educational experiences; there are faculty who fail to incorporate on-the-job learning experiences into a coherent educational program; there are students more attracted by wages than by learning opportunity. Serious as these charges are to the concept of cooperative education, the result is probably no worse than present practices where most students attending colleges seek the best paying part-time job they can find from hopefully enlightened but possibly mercenary employers, and faculty make no attempt to relate academic study to the lives of students.

No author has any solution that will promise that cooperative education will be all that they hope it can be. The best answer to date seems to be to stress the need for a constant educational campaign on the philosophy and purposes of cooperative education to all concerned —students, faculty, administrators, counselors, employers, and parents.

Detrimental Factors in the Economy

One of the big practical problems of cooperative education is that the fortunes of the program tend to rise and fall with the condition of the labor market. Wilson and Lyons (1961) note that:

> Frequently, both the total number of jobs available and the quality of the jobs, from the standpoint of their educational value, are seriously curtailed during periods of economic recession (p. 149).

Their data showed that roughly half of the firms participating in cooperative education reported that a business recession in the late 1950s had little or no effect on their programs; other employers, however, reported problems of varying degrees. Heermann (1973), in answer to the concern about locating jobs, observes that during the sluggish economy of the early 1970s cooperative education was on the rise in community colleges. He also points out that although La Guardia Community College started a mandatory cooperative program during a period of high unemployment in 1971-72, they were able to place all students.

Cooperative programs are really too young to have much experience with economic recessions. The oldest programs in the country, however, have survived depressions, recessions, and wars. A report about how the oldest cooperative program in the U. S., the University of Cincinnati, weathered the depression of 1929 is of interest:

> The University decided to arrange for unemployed students to go to school full-time. The spirit of the students was excellent; the depression brought out a seriousness of purpose which was reflected in the academic work of the students. The University did not attempt to use high pressure tactics to obtain jobs at the expense of married men with families who were being laid off. However, the wisdom of spreading employment of students among a large number of employers proved to be a wise course. Utilities such as telephone, electric, and gas companies, as well as government agencies, proved to be the best places for placement of students in times of economic stress (Wohlford 1971, p. 788).

There are various solutions proposed to this truly serious problem of the dependence of cooperative education on economic conditions. The Committee on the Study of Cooperative Education recommended

that colleges stress the nature of the long-term commitment required of employers. They recommend:

> Only by the clear recognition on the part of the employer that the work-study program is an essential part of the firm's operation and not a luxury or a gratuity given to the college or the student in affluent times can the necessary stability of cooperative education be maintained (Wilson & Lyons 1961, p. 10).

Another approach to the problem is that taken by the U. S. Department of Labor (1973), which issued a 27-page booklet entitled "Some Facts Relating to Changing Manpower Needs: Implications for Cooperative Education." The booklet is a collection of charts, tables, and graphs about trends and predictions for the work force of the future. There is no text and the reader is left to his own devices to determine the "implications" for cooperative education. The collection of facts, together with an interpretation by a qualified economist, may have relevance to national planning and to national funding of cooperative education programs; however, even at this level, one needs to make assumptions about the future that may or may not prove valid. If we are moving to a commitment to life-long learning and to breaking down the barriers between learning and earning, then a young student may have as much right to a job as anyone else.

There are some other unknowns that will have enormous impact on the future of cooperative education. The positions taken by labor unions and government agencies with regard to hiring, has presented problems in the past and will have a profound effect on the future of cooperative education. Gaining the loyalty and understanding of employers is a necessary but not sufficient step to assure the stability of cooperative education during periods of economic distress.

There is another factor related to the laws of supply and demand that is only alluded to in the literature because the slowdown in the pool of applicants for colleges is a recent phenomenon. Rauh (n.d.) asks the question, "Can you recruit the increased student body to justify enlarging the staff and plant capacity?" (p. 10). Frequently touted among the advantages of cooperative education is the increased capacity for students, but very recently the more common problem for some colleges is finding the students to fill the present capacity. Most writers offer the hope that cooperative education is an advantage in student recruitment. Davis (1971) puts forth the argument this way:

> Some institutions are able to achieve a distinctive identity through the adoption of cooperative education. Where several colleges exist in a community,

> or where no clear institutional image is projected, a cooperative education program can give an institution a unique stamp. The new image may, in turn, have positive implications for the recruitment of students and financial support (p. 141).

Colleges will need to weigh carefully the increased administrative costs of cooperative education against the appeal of cooperative education to attract new students.

At the present time, when cooperative plans are relatively rare, it is a good bet that the distinctiveness of the program will attract new prospects—especially from young people not now attending college. Ethnic minorities, blue-collar youth, and women are all interested in improving their position in life through education. Even among so-called traditiona' college students, there is a renewed interest in career preparation and in the application of theory to the solution of practical problems. For many current reasons, the recruiting potential for cooperative education appears as good or better than that of other distinctive programs but the cost can be high and success is by no means assured.

Changes Required of Individuals

There are many seemingly small details mentioned in the literature that can turn into big issues when people are required to change their habits or modes of thought. There are simple solutions to some problems, and other things thought to be problems turn out not to be valid cause for concern. Let us look at the miscellany of items falling under the heading of personal and organizational adjustments.

Calendar. Faculty and students accustomed to having summers free sometimes object to the year-round calendar frequently adopted by colleges on an institutional cooperative plan. But once adopted, both students and faculty may find it has some advantages. In the conventional four quarter plan, for example, where faculty generally work three out of four quarters, some faculty will have to forego summer vacations. But some have found an advantage to taking off the spring quarter of one academic year and combining it with the summer quarter in the next to make a 6 months leave (Rauh n.d.) For students, there is an advantage to joining the labor market in winter or spring terms when the competition for scarce summer jobs is not so great. Some cooperative plans, of course, may call for calendar revisions on the part of students or faculty, even when they do not affect the calendar of the institution. Students may have to adjust to jobs in the morning and school in the afternoon or vice versa, but that is a com-

mon problem for working students everywhere. The cooperative plan would appear to make the situation easier for working students (which is the majority in many colleges) because the institution would take official recognition of the existence of part-time jobs and would offer the necessary flexibilities and alternatives to working students.

Participation in Extra-Curricular Activities. In almost any cooperative plan there is the problem of what to do about student offices, athletics, choirs, etc. With groups of students coming and going, it is hard to maintain an orderly extracurricular program in which freshmen learn the jobs, sophomores do them, junior serve in leadership roles, and so on. But as Davis (1971) points out, special workplans can usually be arranged for students for whom extracurricular activities have special meaning. To work out the problems of coaches and choir directors may be more difficult.

Wilson and Lyons (1961) admit that the criticism that students are unable to enter into the life of the college is frequently made. Their evidence, however, indicates that co-op students do not perceive this as a problem and that their rate of participation in activities is as high as that of non co-op students. In any event, the new extracurricular interests of students seem to be the off-campus activities in the community rather than the organized on-campus social activities that were in vogue a few years ago. Co-op students, of course, have an unusual opportunity to engage in non-college community activities if they care to do so.

Parental Reservations. Parents are another group of people who have some adjustments to make to cooperative education. A rapidly decreasing number parents and alumni still view the college as standing *in loco parentis*. To have a sophomore daughter responsible for her housing and social conduct in the city, for example, is more independence than some parents can tolerate. The majority of colleges, however, are making it increasingly clear to parents that they do not assume responsibility for the personal lives of students even when they are on-campus. Thus, parental adjustment to the earlier independence of young people is a necessity whether their children participate in cooperative education or not.

As many have pointed out, the parents of students who have much to gain from cooperative plans—ethnic minorities as well as those of low socioeconomic status or low academic motivation—are frequently very supportive of the type of practical education that cooperative education represents (Binzen 1973; Cross 1971; Wilson & Lyons 1961).

Faculty Adjustments. Cooperative education probably requires more personal adjustment on the part of faculty than of any other group. For some it means a major rethinking about the purposes of education; for others it means modification in teaching style; while for yet others it means personal inconveniences or minor changes in habits.

Some faculty members, who get their satisfaction from preparing the best minds to follow in their footsteps through graduate school, and to a life of scholarly work in the academic disciplines, may not take kindly to cooperative education. Neither will the traditionalist who believes that the academic curriculum constitutes the most logical organization of human knowledge. And we can also expect some opposition from a group of faculty members who object to vocationalism in any form and who fail to see the advantages of the cooperative plan in bringing relevance and liberal education into the classroom. Knowles (1971c) asserts that these faculty members are a very small minority and he predicts that their numbers are shrinking.

There are also some practical problems, however. Some faculty dislike the shorter holiday and summer vacation periods and the repetition of course materials (Knowles 1971a). For others the major problem is the field of study. Despite the case that can be made for the contribution of cooperative education to the liberal education of all students, faculty are likely to feel that some fields lend themselves to the program better than others. Resistance, if any, would be more likely to arise among the humanities faculty than in business or engineering. But regardless of one's field, it is not always easy to have an eager convert back from his first job tell the professor how things are being done these days in the modern world. Faculty who have dealt with the more sophisticated student, however, regard his questioning and knowledge of application as pluses rather than minuses (Knowles 1971a).

Administrative Problems. Unlike other departures from traditional education, the advocates of cooperative education offer a great deal of practical advice on how to establish and administer programs. The major recent works in the field (Knowles & Associates 1971; Heermann 1972) contain step-by-step procedures and alternatives for staffing and administering the program, with some cautions about likely problems. It is beyond the scope of this review to go into the detail that can be found in the literature. We will, however, list briefly some major pitfalls that deserve consideration before planning begins.

1. Fiscal problems. The task of balancing the calendar for fiscal solvency is no small administrative matter, according to Davis (1971).

The need to provide a complete academic program throughout the summer, the need for year-round financial aid packages, the need to avoid any unanticipated enrollment drop are all critical to the success of the program, and all are complicated coordination problems that can spell fiscal disaster even in well-established programs.

In addition, there are the more routine, but sometimes overlooked, financial implications of increased office space, travel funds for job visitation and development, and in some cases the need for funds for student travel.

2. Problems of staffing. Rauh (n.d.) asks the question:

> Can you hire the professional staff with the skill to implement the plan? Unfortunately, there are no formal training programs that turn out people with the specialized competence to match students with jobs, counsel students in job performance, and relate their work to their academic experiences. Recruiting a qualified staff takes a good deal more scouting than is needed to fill most academic positions (p. 10).

A partial answer to this problem is given by Davis (1971) who points out that some in-service training programs are now being developed. Brown (1971) goes further and gives a very helpful list of sources of assistance. He gives the names and addresses of three training centers offering 3- to 5-day workshops for both beginners and experienced personnel. If cooperative education creates the demand, we can assume that universities would begin to train specialists in cooperative education. In the meantime, the movement seems to be aware of the need for in-service training, and steps have been taken to provide it.

3. Problems of communication. The Wilson and Lyons study (1961) showed a need for closer liaison between industry and colleges on the part of both parties. The cooperation and understanding of employers are, of course, vital to a successful program on all manner of things—development of appropriate jobs, gradual increase in difficulty as students gain in skills, supervision, personal adjustments and special problems of individual workers, prevention of job fluctuation during economic recessions, student placement, and community relationships. Unless the institution begins with a strong commitment to share the opportunities and responsibilities for the education of young people with the community beyond the boundaries of the campus, they are likely to have problems. Cooperative education is just what the name implies. It requires the sincere and dedicated cooperation of both employers and educators. If either party jealously guards its prerogatives to unilaterally dictate the terms of the educational experience.

then the program cannot succeed because it violates the fundamental assumption upon which it rests.

The State of Knowledge on Cooperative Education

Cooperative education is growing for apparently good reasons. It provides one answer to the growing dissatisfaction with the isolation of education; it is a very attractive alternative for groups of people who are new to higher education; and it appears sound educationally.

The research on the impact of the cooperative experience on students and colleges, however, is woefully inadequate. In general, it fails to support many of the advantages claimed for cooperative education, but it doesn't refute them either. The educational concepts underlying cooperative education are fundamental, and good research into the educational implications of this growing innovation would do much to illuminate some major questions about the impact of education on students. These basic questions are of more enduring importance than the pragmatic questions regarding salary and placement of co-op graduates, although there is no reason not to pursue these easier questions that make a difference to individuals contemplating educational alternatives.

Colleges would be well advised, it appears, to study carefully the promise of cooperative education in their situation.

Nontraditional Study

The trek to formal education by adults is little short of phenomenal. There is an obvious interest in continued learning on the part of people that we have assumed had finished their education. In a survey of the learning interests of American adults between the ages of 18 and 60, Carp, Peterson, and Roelfs (1973) found that three-quarters of those responding said they wanted to learn more about something. That figure represents nearly 80 million people (excluding fulltime students) who are potential learners in formal education Even more indicative of sincere interest in further learning on the part of adults is the fact that one-third of those in the survey (representing 32 million people) actually had engaged in formal learning in the year prior to the study. They had taken evening courses, extension classes, correspondence courses, on-the-job training, private lessons, independent study, or courses via television.

The interest of adults in further education is growing. But so is the number and the proportion of adults in the population. The post-World War II baby boom that placed such a heavy burden on schools in the 1950s and 60s and the colleges in the 1960s and 70s has now moved into the adult age ranges. Projections indicate that the group of 25 to 44 year-olds will be the fastest growing age group in the U. S. in the decade ahead (U. S. Department of Labor 1973). They will increase by 30 percent from 1970 to 1980, compared with a 3 percent increase in the decade of 1950-60 and a 2 percent increase in 1960-70.

At the present time many adult learners are seeking education outside the recognized educational institutions. Moses (1970) presents figures showing that the rate of growth of the educational periphery (programs offered by business, government, churches, television, proprietary schools, etc.) has been growing more rapidly than enrollments in the educational core (kindergarten through graduate school). In 1940, for example, school enrollments were almost double those in other learning activities – 30 million students from pre-primary through graduate school compared with only 17 million in the educational periphery. By 1976, however, Moses predicts that the number of students pursuing formal learning *outside* schools and colleges will exceed the number inside. There will be 67 million learners in the educational core compared to 82 million in the periphery if present trends continue.

The problem with straight-line predictions, however, is that they fail to take into account changing conditions. Established colleges and universities are by no means unaware of the growing adult learning market, and it looks as though there will be increasing competition (or cooperation) between the educational core and the periphery. In research sponsored by the Commission on Non-Traditional Study, Ruyle, Geiselman, and Hefferlin (1973) found that half of the institutions of higher learning in this country are offering new flexibilities and new programs that may attract adult learners. The movement of colleges and universities in this direction is so new that it could not have been predicted a decade ago. The great majority of nontraditional programs, many of which are designed with new flexiblities for adults, are not more than 2 years old.

The target of the new programs is clearly a new type of student. Seventy percent of the institutions offering a nontraditional program said that it was unconventional with respect to the type of student served. Only about half offered something new in the way of instructional innovation or content modification. And the perceived market is most often adults, usually special occupational groups or housewives and working adults generally (Ruyle, Geiselman, & Hefferlin 1973).

Much as a major thrust of the cooperative education movement in considered career-oriented, so too are the most popular programs of nontraditional study. While making that observation, we should be careful to point out that both movements involve very broad conceptions of education, and the most dedicated proponents of each movement play down the vocational aspects, stressing instead pedagogical reform. Nevertheless, occupational and career information is the most common interest of adult learners (Carp, Peterson, & Roelfs 1973), and it is the most frequent offering of nontraditional programs of education (Ruyle, Geiselman, & Hefferlin 1973). The new adult learners perceive a need for additional learning in order to improve earning, and the educational establishment knows that they must depart from the tradtional if they are to serve these new needs.

Stern (1972) predicts an escalation in the demand for career education for adults. He speaks of compulsory adult education in the near future and documents his assertion by citing state legislation requiring additional schooling for license renewal in an increasing number of occupations and professions. The time is not far off when the line between fulltime students and fulltime workers will be completely blurred after age 18. There will be few fulltime students and few fulltime workers in the world of the future. Instead, people will learn

while they earn and vice versa throughout their life span. Hopefully the concurrence in time will lead to integration in concept.

Cooperative and Nontraditional Movements Compared

In an historical sense, the cooperative education movement and the nontraditional study movement are quite similar. They both consist of a small band of people and institutions who have been working in cooperative or adult education for years, and their amazement at, and occasional resentment of, the recent enthusiasts who think they have discovered something new are understandable. The charisma of nontraditional study, however, has resulted in such a burst of ecstatic enthusiasm on the part of its converts that the most visible leaders of the movement have felt called upon to deliver some stern words of warning about the "serpents lurking in the bottom of the basket of shiney apples" (Bailey 1972) and about overeager acceptance of some of the new flexibilities (Gould 1972).

The leaders of the cooperative movement, on the other hand, appear to be encouraging all comers and are expanding their definitions of cooperative education to encompass the wider range of programs represented by the newcomers. Despite the encouragement of insiders in cooperative education, the growth of nontraditional study is the more explosive—probably because it is easier and more tempting to remove old requirements than to make arrangements for incorporating new ones.

In any event, the effect of the two movements on the literature is quite different. Cooperative education research and writing is still limited to relatively few experts on the subject—usually practitioners with practical advice to offer. The research has not been especially well supported nor has it, for the most part, been done by people sophisticated in research design. Nontraditional study on the other hand has attracted an abundance of publications both here and abroad. The literature is a mixture of the writings of newcomers and of elder statesmen. But it is provocative and stimulating reading, and thanks largely to the Carnegie Corporation, Educational Testing Service, and the Commission on Non-Tradtional Study the research is surprisingly extensive for such a young field.

Another quite obvious difference in the literature of these two movements, which share the common goal of integrating learning and earning, is that whereas writings on cooperative education stress the advantages of the program, writings on the external edgree tend to enumerate the problems to be solved. This may reflect the rate of growth of

the two movements—co-op slow and steady until quite recently, and the external degree very very rapidly.

Unlike cooperative education, which has entered adolescence with its accompanying crisis of identity, nontraditional study is still in a carefree childhood. Almost two-thirds of the nontraditional programs in colleges in this country have been introduced within the last 2 years (Ruyle, Geiselman, & Hefferlin 1973). Although there is mass confusion about the meaning of the term "nontraditional study" not even the prestigious Commission on Non-Traditional Study, which gave 2 years of study to the question, could respond with a definition. This state of affairs is in marked contrast to that of cooperative education where, as we have seen, an inordinate amount of space is given to defining the field.

Nontraditional Study Defined

The final report of the Commission on Non-Traditional Study frankly admits that "how to define nontraditional study accurately and comprehensively was a stumbling block we never quite hurdled to our satisfaction" (p. xiv). They finally settled on conceptualizing nontraditional study as an attitude that could not be defined except tangentially:

> This attitude puts the student first and the institution second, concentrates more on the former's need than the latter's convenience, encourages diversity of individual opportunity rather than uniform prescription, and deemphasizes time, space, and even course requirements in favor of competence and, where applicable, performance. It has concern for the learner of any age and circumstance, for the degree aspirant as well as the person who finds sufficient reward in enriching life through constant, periodic, or occasional study. This attitude is not new; it is simply more prevalent than it used to be. It can stimulate exciting and high-quality educational progress; it can also, unless great care is taken to protect the freedom it offers, be the unwitting means to a lessening of academic rigor and even to charlatanism (p. xv).

The significance of this definition is that it enfranchises adults as serious learners. Alan Pifer (1973), president of the Carnegie Corporation, who is given considerable credit for boosting nontraditional study to prominence in this country, remarked that the only place he would really part company with the final report of the Commission is in its failure to place emphasis on nontraditional students, particularly adult learners. He sees the learning needs of adults as the central issue in nontraditional study. Robert Finch (1972) seems to endorse the urgency of the concern for providing for adult learning needs, but he does so for somewhat different reasons. He warns that we should learn

some lessons from the crises presented by the World War II baby boom that created the youth revolution of the 1960s and 70s. In the next decades the balance of population will shift into the young adult ages. We would do well, he suggests, to plan ahead for the needs of this group of citizens.

Nontraditional study, as discussed in the literature, includes more than adults, of course. For the purposes of this review, however, we shall limit our concern to those aspects of the movement that are of special importance to fulltime workers and part-time students. We shall further focus this discussion around degree-credit programs, since certification is of special concern to colleges and universities.

Models

Nontraditional programs, like cooperative programs, have been "home grown" to meet local needs. Thus the diversity is very great indeed. The element that forms the common bond for the nontraditional studies movement is the desire to define learning as a quality of the individual rather than an offering of the institution. What the person knows is more important than how or where it was learned.

Administrative-facilitation Model. This form of adult education is probably the most common model in existence today. It consists of assembling services and facilities to enable part-time learners to meet regular degree requirements. The most familiar example is the evening college, created as a separate division of the university. Usually quite traditional academic fare is offered in rather traditional ways. Classes and advisory and administrative support services are simply scheduled at times convenient for working students.

The administrative-facilitation model encompasses some of the oldest programs of nontraditional study as well as some of the newest. The age-old correspondence study is a method of delivering education at times and places more convenient for the new learners. But programs that utilize the new technologies to deliver education at times and places convenient for adult learners are also a form of making arrangements that will enable adults to pursue regular degrees. Since 1956, it has been possible for students in the Chicago area, for example, to receive all the basic instruction for an AA degree in their homes via television (Morris 1972). More recently, numerous programs have been developed utilizing combinations of new media. Students in business administration at the University of South Carolina, for example, can attend closed circuit television classes in a dozen locations throughout the state and can raise questions with the instructor in the live classroom via leased telephone lines.

Whether colleges and universities or profitmaking corporations will take the leadership in preparing educational programs for the new media is unknown, but for the present it is the recognized institutions of higher education that hold the trump card for granting degree credit. If they also provide the instruction, credit will surely be facilitated. Even if they do not offer the instruction, the new flexibilities of nontraditional study make possible learning by a variety of means with certification through other channels. The examination model is one such channel.

The examination model offers students the chance to demonstrate what they know without concern for where or how they learned it. It is one of the most popular innovations introduced today, but actually it is one of the oldest models of the external degree. Since 1858, the University of London has offered a degree to students who could pass the same examinations as those taken by regular students.

Survey research indicates that credit-by-examination, in small doses at least, is well accepted by colleges and universities today. The Advanced Placement Examinations, backed by solid research demonstrating that Advanced Placement students do as well or better than regular students (Casserly 1965), are accepted for credit by 64 percent of the colleges and universities in the country (Ruyle, Geiselman, & Hefferlin 1973). A more recent examination program of the College Entrance Examination Board, the College Level Examination Program (CLEP) has gained extremely rapid acceptance since it was launched in the mid-1960s. The CLEP tests are accepted for credit by 64 percent of the institutions responding to the Commission's survey (Ruyle, Geiselman, & Hefferlin 1973). Acceptance by individuals of the examination route to educational credit has been almost as rapid. The number of people taking the CLEP examinations increased dramatically during 1970-71, and there are now over 225 test centers established by the College Board throughout the country (Christ-Janer 1972). While the majority of colleges now accept demonstrated academic performance on tests as one route to the degree, very few institutions are willing to entertain the idea that it could be *the* route to the degree.

The New York Regents external degree is an exception, and it is America's best-known examination model. It is a degree awarded by a nonteaching institution. Students are encouraged to learn from any source or experience that they find useful—other colleges, business, correspondence, television, independent study, and the like. Faculty panels then evaluate the learning by oral, written, or performance examinations, or by looking at the portfolio of accomplishments of the

students. Anyone who can pass the tests can earn a degree from the University of the State of New York, even if they have never set foot on a college campus (Nolan 1972). The concept is spreading, and Thomas A. Edison College in neighboring New Jersey is now cooperating with the New York Regents degree in an interstate arrangement that will avoid duplication of evaluation efforts.

The Validation Model is closely related to the examination model but carries the idea one step further. A teaching or nonteaching agency defines the total learning experiences that constitute a college degree (no small task!). When the student meets the requirements by whatever means, he is granted a degree. Valley admits that this is a rare occurrence at present. But he also notes that a proposal has been made to establish such a model that would become a worldwide validating university.

The Credits Model is also a variation on the theme of validating learning experiences as worthy of degree credit. England has the only pure credits model in existence today, and its Council for National Academic Awards (CNAA) does a big business. Over 20,000 students are enrolled in colleges throughout England offering instruction but not degrees. The Council, consisting of representatives of the colleges involved, is the degree-granting agency and presumably the watchdog for standards. Its charter requires that the Council see to it that CNAA degrees are comparable to university degrees.

The Modes-of-Learning Model concerns itself with broader reform than the credit issue that seems to dominate much of the external degree movement. The credit issue is, of course, a vital one with complex implications for both colleges and students. But it is increasingly apparent that credit arrangements alone are unlikely to satisfy the full range of learning needs of adults. There is some evidence that adults are not enamored with either degree credit or the conventional curriculum. The research projects of the Commission on Non-Traditional Study reveal some interesting findings with regard to the credit issue: (1) only 17 percent of the adults interested in continuing their education are interested in college credit (Carp, Peterson, Roelfs 1973), (2) forty-two percent of the colleges offering nontraditional programs are offering traditional content (Ruyle, Geiselman, & Hefferlin 1973), and (3) that less than 5 percent of the potential learners indicate that further knowledge in traditional academic subjects such as biology, humanities, languages, or the physical or social sciences is their first choice of learning options (Carp, Peterson, & Roelfs 1973). These findings suggest that adults are more interested in some fundamental

changes in the content offered by traditional educational institutions than they are in the present emphasis on changing the credit arrangements attached to traditional course content.

The modes-of-learning model goes beyond the question of providing equality of access to previously disenfranchised learners; it attempts to consider the special needs and interests of the new clientele. It seeks not only to introduce greater flexibility into the forms and procedures of education, but to offer new options in content. The institutions categorized as modes-of-learning models are a diverse group ranging from old, well-established programs such as the Liberal Studies program at the University of Oklahoma to the dramatic new programs that have received so much publicity recently—England's Open University, the University Without Walls, and Minnesota Metropolitan State College. To varying degrees, these institutions have designed their programs from the ground up to fit the needs of their clientele. They reassess the content, the delivery systems, and the scheduling demands of traditional study. Brief descriptions of some modes-of-learning models can be found in Valley (1972a and b), Valentine (1972), and Baskin (1972).

The Complex-Systems Model is self-descriptive. It combines elements of the other models to meet the special needs of the clientele. The well-known Empire State College is really a complex combination of other models. It has no campus, but it does have a faculty, an administrative staff, and a network of student services such as learning centers, counseling services, placement examinations, etc. In tandem with the New York Regents Degree, it is an examinations model; Empire State might offer some or all of the instruction, counseling, etc., for candidates for the Regents Degree.

Pros and Cons of Nontraditional Programs

All of the above models have their problems, but seeking solutions is almost a national mania for educators. As Bailey (1972) has observed, "Flexible space-time higher education experiments are burgeoning across the nation like toadstools after a summer's rain" (p. 172). In the literature on nontraditional education, considerably more attention is given to putting some brakes on hasty and irresponsible implementation than to selling the concept. To some extent the advantages seem self-evident, and perhaps even necessary, given the present social priorities. It may be necessary, however, to stress certain cautions, given the rapid adoption of new programs. At any rate, we shall attempt to faithfully represent the literature by giving relatively little

space to advantages, with more discussion reserved for problems and their possible solution.

The Need. In an introduction to a special issue of the *Journal of Higher Education* on the external degree, I suggested that the rise of interest in the external degree was almost inevitable, given present social priorities (Cross 1973). Five factors were cited as contributing to the acceptance of the concept of nontraditional education: (1) The egalitarian mood of the country and the stress on equality of educational opportunity for all; (2) the existence of a large reservoir of academically motivated people who grew up in an age when neither the pressures nor the opportunities to attend college were as great as they are today; (3) the growing realization that "an education" will no longer last a lifetime. Change is so rapid that we will need to keep learning in order to keep earning; (4) the technological explosion and the ability to deliver a variety of learning options has made the idea of "campus" as a repository of all teaching and learning obsolete; (5) education is becoming increasingly sophisticated, and we are no longer content to equate hours in the classroom or years on the campus with educational competency.

Boyer (1972) points out that the external degree, or at least the concepts embodied in it, is a necessary reaction to changing conditions. In a well-written historical analysis, he points to the changes that have taken place since the "fortress" approach to learning was established a century or more ago. At that time, there was a "scarcity value" to a college education that was reserved for the privileged few: long-distance travel was restricted and the student was expected to stay put on the campus; the human voice was the primary teaching device; and *in loco parentis* was taken seriously by college personnel who were perceived as guardians of the morals of young people. Today there are dramatic changes in those perceptions of the role of education, and departure from traditional concepts and forms is essential.

Most authors arrive at the general position that the advantages in nontraditional education lie in the need for responsiveness to changing social conditions. Perhaps the conclusion is best captured by a quotation from the report of the Commission on Non-Traditional Study:

> Education, like every other important entity of society, must be responsive to the world it serves or suffer from the constant danger of becoming static and lifeless. Its responses must be active, innovative, contemporary. And those who design education must do more than merely respond; they must develop initiatives of their own that reflect an awareness of changing necessities (p. 1)

Problems and Possible Solutions. In colorful language, Bailey (1972) accepts the promise of the nontraditional movement and then warns that:

> . . . at the bottom of this basket of shiny apples lurk some serpents. And the serpents are dangerous. Unless recognized and carefully removed or contained, the serpents can poison all such programs and can crawl through the grass of college-campus quadrangles (p. 173).

Bailey sees four serpents. The first is the serpent of academic shoddiness. While recognizing that plenty of academic shoddiness exists on the traditional college campus, Bailey finds particular problems in nontraditional proclivities to equate test passing with educational competency and to grant credit for subjectively evaluated experiences that may sever academic standards from "any and all recognizable moorings" (p. 174). London (1972) and Gould (1972) also discuss the deterioration of standards as a possible cause for concern. And the research of the Commission confirmed that concern about academic standards and the difficulties of assessing nonclassroom learning were major deterrants to the initiation of nontraditional programs on the part of institutions (Ruyle, Geiselman, & Hefferlin 1973). But Gould (1972) raises the critical question: are academic standards "to be the traditional ones we have always accepted without question, or do these, too, now need reexamination?" (p. 181).

Harnett (1972) has discussed the questions surrounding maintenance of standards. While offering a helpful analysis of the problems of evaluation inherent in nontraditional programs, he points out that traditional education has never quite solved the problems of standards either. For example:

> Course performance resulting in an 'A' grade at one institution would result in failure at certain other colleges. Because of this great difference across institutions—a diversity we have always cherished—it is simply foolish to argue that a traditional college degree has uniform meaning or connotes some minimal educational standards (p. 30)

The Commission (1973) recognizes the potential for abuse in the award of academic credit through examinations, but they conclude that the promise may be greater than the peril. They recommend that:

> Degrees should sometimes be awarded wholly by examination if two conditions are met: the institution concerned is an established and reputable educational authority; and valid and reliable examinations are available to test the attainment of the degree's objectives (p. 131).

Most authorities agree that there are unique problems of testing in nontraditional education but that they are soluble. Kimmel (1972) discusses the uses of some particular tests in nontraditional programs, and Warren (1973b) provides some excellent guidance for practitioners coping with real problems of granting credit for nontraditional learning.

People are a little less sanguine about the problems of granting academic credit for work and community experiences. The Commission (1973) puts it this way:

> The major problem concerning the certification of proficiency arises . . . when institutions accept work experience or community service for credit toward a degree without assurance that such service has had the ascribed educative effect. Little or no difficulty exists when the experience is planned for the purpose of learning, is supervised by competent instructors, and results are verified by other qualified people (p. 127).

After studying present practices and evaluating the problems, the Commission concluded that:

> formal academic credit should be given for such life experiences and community service, but only if they fit into some significant comprehensive plan for learning and if their educative results can be evaluated (p. 128-129)

The Commission then included among their 57 recommendations a specific recommendation for the development of new devices and techniques to assess the educative effects of work experience and community services.

The second serpent identified by Bailey (1972) is the serpent of the garden path. Many people will be lulled into thinking that independent learning is easy and, says Bailey, "Enormous expectations will be initially established followed by the thud of mass attrition" (p. 175). Gould (1972) also worries about the expectations that are being raised, but he points to our inability to provide enough good programs to serve the demand. Both men stress that adequate counseling and support services are needed for quality programs. The Commission (1973) has recognized the special problems of the independent learner; recommending that:

> Student guidance and counseling services, in specially created centers when necessary and appropriate, should provide expert advice relevant to both individual need and available resources (p. 34-35)

Cross and Jones (1972) describe the need for guidance and stress the importance of the "two-way street" of counseling—adults need informa-

tion about the availability of programs to serve their needs, and institutions need continuous information about reactions and interests of adults in order to devise and revise programs. Perhaps the most significant developments in counseling programs are taking place in connection with the Open University in England (Maclure 1971) and in the Learning Consultant Network of the Regional Learning Service of Central New York (Vickers 1973).

The third serpent is that of fiscal naivete. Some people suspect that one of the reasons for the rapid spread of external degree programs at the level of state government is the perception—correct or not—of legislators that the external degree is less costly than the internal degree. Gould (1972) observes that:

> All this is very tempting to state legislatures so hard pressed to provide funds in large amounts for so many social services in addition to education (p. 181).

So far, the question of cost-effectiveness of the external degree is unanswered. Howard Bowen (1973) has drawn up a model of an external degree program that he considers good education—one he would be "willing to recommend to my own institution or to my own son." He estimates the cost for his model at approximately $1,675 per fulltime equivalent student and observes that this is roughly comparable to the $2,127 average cost per student in public colleges and universities in 1971-72. His economic analysis seems to agree with the experience of institutions to date. Cross (1973) reported that most institutions (41 percent) in a national survey said that the costs of their external programs were generally comparable to their conventional programs. Twenty-one percent said that the external degree was more expensive and about the same proportion (23 percent) said it was less expensive. In a similar vein, it has been reported that the Open University approach to higher education in this country is not expected to save much money by those who have studied the situation *(Phi Delta Kappan* 1973).

On the other hand, a recent analysis from Open University concludes that their approach is saving considerable amounts of money and that the average recurrent cost per graduate in Open University and conventional universities in England would not be equalized until Open University reached a dropout rate of 85 percent. Wagner's (1972) analysis concludes that the average recurrent cost per student in Open University is about one-quarter that at conventional English universities, that the capital cost per student place is about 6 percent

of the conventional figure, and the resource cost per FTE is about one-sixth that of other universities. If such experiences are verified to an appreciable extent in this country, external degrees could become highly controversial, squeezed between student and legislative desire to save money and faculty and institutional desires to protect educational interests. Questions of quality, standards, attrition, and supporting services would then move into the spotlight of evaluation.

The fourth serpent identified by Bailey (1972) is that of projected technological miracles. He grants that the new technology will be useful, but he warns that in education "hardware is no better than software" and that "we are in our infancy in developing academic software suitable to the miracles of instructional hardware" (p. 175). Gould (1972) sees another side to the technological revolution and that is that it may isolate the student. We don't yet know, he says, what the optimum mixture of cross-stimulation and solitude is.

What you conclude about the promise and rate of development of technology depends on who you read. The Carnegie Commission on Higher Education (1972) calls their report on the uses of technology in higher education *The Fourth Revolution*[3] and in it they state flatly that:

> Higher education (and education generally) now faces the first great technological revolution in five centuries in the potential impact of the new electronics (p. 1).

They predict that by the year 2000, as much as 80 percent of the off-campus instruction may be carried out through information technology.

Although most people writing on the new media agree that its potential is enormous, no one seems to have any very good estimate on how rapidly this new revolution is arriving. The Carnegie study (1972) guesses that as many as 1,000 to 1,500 colleges might be engaging in new media activities of some kind, but the research of the Commission on Non-Traditional Study would indicate that these figures are highly inflated—at least in the use of new media in non-traditional programs (Ruyle, Geiselman, & Hefferlin 1973). For example, only 10 percent of the institutions professing to offer nontraditional programs in 1972[4] were using tape cassettes for instructional purposes, and

[3]The third revolution, according to Ashby (1967), was the invention of printing and books.

[4]"Nontraditional" was defined by the questionnaire as a program designed for nontypical students, or offered in off-campus or unusual locations or by *novel means of instruction.*

that medium was more popular than broadcast radio or television (2 percent), closed-circuit, live, talk-back television (2 percent), closed-circuit television of videotapes with no immediate feedback (2 percent), computer-assisted instruction (1 percent) or talk-back telephone instruction (1 percent).

The two technologies that seem to be generating the most excitment for their potential in reshaping the form of education are cable television and videocassettes. Walton (1973) says that the videocassette is gaining ground rapidly in education programs sponsored by business and industry and he predicts its rapid spread into colleges and libraries:

> Anything that can be delivered on a television screen, in black-white or color, using stereo or monaural sound, or a different language on each of two sound tracks, can be packaged in video-cassette (p. 9)

Thus the adult learner can look forward to a time when he would be supplied with tapes, textbooks, workbooks, and packaged programs that would play through his television set or through one at the public library.

Cable television is the other new technology that holds out great hope for delivering lifelong education in new ways. The Sloan Commission on Cable Communications (1971) predicts that by the end of this decade, cable television systems will be serving 40 to 60 percent of all American television homes. Walton (1973) recommends "On the Cable," the Sloan Commission report (1971), and "A Short Course in Cable" (1972) as good primers that offer useful layman's descriptions of cable television and its potential for education. Another good source of information about the new technologies for the layman is Peck (1972), who discusses the fit of technological devices to the needs and characteristics of learners.

Where To Get Further Information

There is no lack of information about nontraditional programs, and more is on the way. The work of the Commission on Non-Traditional Study has generated a variety of written materials, including their final report and recommendations (Commission on Non-Traditional Study 1973), a set of background papers for the deliberation of the Commission (Gould & Cross 1971) and a book entitled *The External Degree* by Professor Cyril Houle (1973). In addition, an extensive review of the literature with annotated bibliography (Mahler 1973) and the results of the projects in an interlocking research program will be avail-

able in 1973-74 (Carp, Peterson, & Roelfs 1973; Hefferlin 1973; Ruyle, Geiselman, & Hefferlin 1973; Walton 1973; Warren 1973a). The ERIC Clearinghouse on Higher Education has also issued two literature reviews (Shulman, n.d. and Sharon 1971) and a bibliography (ERIC 1972). Valley's (1972) *Increasing the Options* contains some very helpful and specific information: it is now out of print but may be obtained through ERIC. The Office of New Degree Programs has also prepared two annotated bibliographies (Office of New Degree Programs, March 1972 and August 1972). Thus printed materials are abundant.

Because the growth of nontraditional studies has been so rapid, it is extremely difficult to keep current of new developments through the relatively slow medium of print. Offices and agencies are springing into existence rapidly to meet the escalating demand for assistance in planning new programs. While this review cannot pretend to list all such agencies, we might suggest that a good place to make entry into the network of specialists in nontraditional study would be the Office of New Degree Programs. The Office is a joint activity of the College Entrance Examination Board and Educational Testing Service. It collects and disseminates information about nontraditional education and offers advisory and consulting services to colleges considering new degree programs. There are also other agencies with varying specialties offering assistance to colleges and individuals. Among these are professional associations such as the National University Extension Association in Washington, D. C. and the Society for College and University Planning in New York City. The National Center for Public Service Internships in Washington, D. C., the Society for Field Experience Education at New College in Sarasota, Florida, and the National Center for Innovative Higher Education at the University of Wisconsin at Green Bay are all concerned with encouraging experiential learning and are likely sources of information for developments in that area. The Instructional Systems Clearinghouse is a federally sponsored agency located in Corvallis, Oregon, with regional centers across the country furnishing detailed information about courses and programs appropriate for independent study.

State boards of higher education have also been actively searching out new alternatives. Many have written reports, some have data, and most have some person on the staff who is abreast of current developments in the field.

Alternative Futures for the Integration of Learning and Earning

At the moment, enthusiasm is high for ending the isolation of education and for easing the rigid distinction between the "school years" and the "working years." Young people are being encouraged to engage in "adult" activities sooner, i.e., to "stop out" of school for travel or work experience, to take an active role in political and social affairs, and to participate in the community beyond the campus. At the same time, adults are expressing an interest in returning to school. Indeed, for increasing numbers, continued formal education will be a necessity if they are to keep abreast of new developments and new licensing standards in their field of work. For their part, colleges are showing a new receptivity to accommodate education to the needs of learners—to welcome adults into the learning force and to help young people gain the life experiences that make education more meaningful. Overall, the picture is one of sincere efforts to move education into the lives of learners. In the near future, it seems to me, the trend toward greater integration of life/work experiences and traditional education is likely to accelerate. For the long term, the picture is less clear.

The future of the economy is unpredictable, but it will surely affect both cooperative education and nontraditional study for better or for worse. If we are entering an era of "no growth" in the birth rate, the economy, and school enrollments,[5] then according to some scholars extensive innovation will be unlikely. Hefferlin (1971) has shown that change in higher education comes about through creating new structures or hiring new people, not primarily through changing the habits of people in existing institutions. History documents the validity of his observation. In the 1800s, new land-grant institutions were established in order to broaden the curriculum beyond the classical boundaries: in the 1900s, it has become necessary to establish community colleges in order to promote the concept of universal access. The so-called nontraditional education movement is moving most rapidly where totally new institutions are established—Open University, Em-

[5]See Meadows (1972) for an excellent discussion of the need for a "no-growth" philosophy.

pire State College, Minnesota Metropolitan State College, and similar institutions.*

In a period of no growth and no expansion, the traditional college is not likely to have new faculty coming in with different ideas; thus the status quo continues because people are adjusted to it and find it more comfortable than change. Even if new faculty do arrive wanting to change things, they are not arriving in sufficient numbers to establish a significant mass, and hence the radical is more likely to be cooled out than to become a leader.

Since jobs also fail to expand in a no-growth economy, people are less prone to rock the boat. Young people are not likely to take the gamble of attending a college departing from the traditional—which is the primary stimulus for change to the established institutions. Furthermore, if jobs become scarce and the demand for new workers dries up, then training young people for nonexistent jobs becomes unacceptable, and colleges are expected to perform the traditional and socially useful function of "keeping the kids off the street and off the labor market." Labor unions might be expected to endorse that role for higher education in a no-growth business climate. Thus, one might suggest that in a no-growth economy, which some predict to be here or in our immediate futures, the traditional liberal arts curriculum will survive and even grow stronger because critics will have more to lose than to gain in questioning it.

An equally persuasive argument can be made, however, for the continued expansion of nontraditional forms of study in a no-growth economy. In a no-growth situation, the competition for existing resources and markets increases. The adult learning market is very attractive to industry as well as to colleges. Proprietary institutions, on-the-job training, short courses in speed reading, encounter groups, foreign language training and the like are growing enterprises promoted by private industry. Furthermore, the new technologies open a vast new arena for the participation of industry in education. Many believe that industry has the edge in producing both the hardware and the software of the new education. If, through producing their own educational programs, industry should discover that competence can replace credentials as the criterion for employment, then the big stick for upward mobility through education would pass from colleges to business.

*Some contend that the admittedly slower approach of changing traditional faculty and institutions ... the more effective route to change in the long run (University of California 1971), but there is little dispute over the fact that new institutions can bring about change more rapidly than well-established institutions.

Colleges, facing financial crisis and declining youth enrollments, are not likely to let the potential adult (or youth) market pass so rapidly from their grasp. In other words, despite resistance to change on the part of some traditional faculty members, it may become a practical necessity to meet the growing competition for the education market.

Neither the adult nor the youth market for education is likely to dry up in a no-growth future. Individual workers will have to meet increased competition through being better prepared and better qualified than the next person. Education, through credentials or competency, is perhaps the best way to beat the competition. In addition, retraining for totally new careers can be expected to increase as workers are phased out by industry seeking new and cheaper ways to do the job. If the job situation should become very tight, then we face the prospect of shortened work weeks, early retirement, late labor market entrance, educational leaves, and other measures designed to spread the available work among more people. This is the future envisaged when we speak of the inevitable need to provide for increased leisure time. Since research indicates that education creates its own demand, i.e., better educated people are those who are most likely to seek further education, we would predict a steadily rising demand for education for leisure as well as for career preparation.

Added to these pressures to integrate education into the life needs of learners are the social pressures for equality of educational opportunity, the need to solve social and ecological problems through the application of knowledge, and the rising demand for educated workers to live in this complex society.

In analyzing the two arguments—one for and the other against rather dramatic change in education—one observes that the first argument predicting the slow-down of innovative approaches to education is based upon fear and the entrenchment of the status quo on the part of almost everyone. Faculty want to protect what they have. Young people are inclined to accept forms of education that have known monetary value. Labor unions would be likely to oppose cooperative education to protect jobs. The second argument is predicated largely on everyone rising to meet changing conditions and, not so incidentally, the competition—colleges to attract and hold the education market of young and old, individual workers to increase their competencies, and society to find new methods to distribute the available work. Although prediction is always hazardous in changing times—and what times aren't?—I suspect that we will see substantial change in education in the decades ahead. I believe that the change will be in

the direction of ending the isolation of education. Cooperative education and nontradtional study for adults are two movements that seem in touch with their times.

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