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ABSTRACT

THIS DOCUMENT INCLUDES THE COMPLETE TEXT OF 23 PAPERS PRESENTED AT THE ANNUAL MEETING OF THE PENNSYLVANIA ASSOCIATION OF JUNIOR COLLEGES. THE PAPERS PERTAIN TO (1) IMPROVED UTILIZATION OF COLLEGE PROFESSIONALS, (2) PROVIDING ATTENTION TO INDIVIDUAL NEEDS (3) INNOVATIONS IN BUSINESS INSTRUCTION, (4) EARLY CHILDHOOD EDUCATION, (5) NEW APPROACHES IN THE APPLIED LIFE SCIENCES, (6) COLLOQUIUM IN THE SCIENCES, (7) NEW DIRECTIONS IN ENGLISH INSTRUCTION, AND (8) UNRELATED TOPICS OF GENERAL INTEREST. (MC)

SELECTED PAPERS

Presented

at the

Twenty-seventh

Annual Convention

of the

PENNSYLVANIA ASSOCIATION of JUNIOR COLLEGES

October 10, 11, 1969

The following papers were presented at the

Annual Meeting of the Pennsylvania Association

of Junior Colleges, held at Harcum Junior College,

Bryn Mawr, Pennsylvania

on Friday and Saturday, October 10 and 11, 1969

Those having questions
or comments are invited
to contact the author.

A S S O C I A T I O N O F F I C E R S

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INTRODUCTION

The growth of the two year college movement within Pennsylvania has created a unique opportunity for private junior colleges, two year campuses of four year colleges and universities, and community colleges to explore the challenges of providing appropriate and effective institutional responses to serve the increasing numbers of students who are seeking access to higher education through our institutions. Not only are we faced with the problems of expanding enrollments, but we are also concerned with developing new kinds of educational programs and improving the quality of instruction and student personnel services for those that already exist. Our member institutions are meeting these challenges in different ways, many of which illustrate high levels of innovation and effective practice.

A major purpose of our annual meetings is to exchange information and ideas about problems and promising responses. In an era of mass communication and a resulting universal search for similar if not identical answers to a host of institutional and societal concerns it seems most appropriate that the results of our deliberations should be preserved not only for the use of our own members who could not attend the meetings, but in addition distributed to other professional and learned societies seeking answers to the same questions that concern us.

Accordingly, it was the decision of the Executive Committee that these Proceedings should be published. It is our hope that they will prove useful to the membership and serve as a medium of exchange with other state and national organizations.

Richard C. Richardson, Jr.
Editor

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RACIAL INSULARITY AND THE NATIONAL PURPOSE

By Samuel Proctor
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The logical and moral conclusion that should ensue from our national heritage of the Judaeo-Christian ethic, the Constitution and 350 years of national bi-racial experience is that the black and white communities in America--in the South--should effectuate a just and compatible rapprochement. At this point in history only the most specious anthropology, the most anarchistic social philosophy or the most eccentric social chauvenism could lead to any other conclusion. Our destinies, social, cultural, economic and political, are inexorably bound together unless we pursue an irrational, illegal and immovable course that would lead to a continued intransigent estrangement.

An economic program that would keep blacks poor will operate detrimentally against us all; a fascist, racist philosophy would jeopardize the freedom of all in its implementation; a violation of law and order in high places will lead to a concomitant disrespect for law and order among the masses. We would all stand to lose.

Thus, in spite of the difficulties and human failure, a society that blends the interests of all with justice and mutual respect is the only decent objective we have.

And, since 1954, there have been many of us naive enough or hopeful enough to believe that this was the goal towards which we are moving. We held this hope sanguinely despite occasional set-backs and despite the sluggish pace of social change. We saw in it four potential developments.

(1) We saw in public school integration the end of a dual system with dual standards. We thought that by 1968 surely one full generation of black children--with 12 years of schooling added to 1954--would have coursed their way through the public schools with only their innate capacities setting limits on their level of academic attainment. We saw them entering schools that would assume nothing permanent and immutable about their sub-cultural limitations and induct them into the main stream of Americana. We saw them starting on even footing with every other child and finding the stimulation that would offset economic and racial vestiges of the legacy of racial inequality.

(2) Furthermore, our high vision in the mid-fifties led us to believe that the integration of schools would provide youngsters with sufficient contact beyond the wall of color to reduce the fact of color to an incidental aspect of humanity like fatness, freckles or flat feet and, hence, signifying nothing ipso facto regarding mental ability, character or the intangible personal attributes.

(3) We saw this as the beginning of the end of discrimination in housing and jobs as a derivative of the levelling off of educational opportunity and social equality.

(4) and, fourthly, we looked forward to black ethnocentricity becoming no less of a social and economic impediment than the Catholic or Jewish faith, or Polish or Norwegian ancestry. We saw social class as being eventually the result of one's own capacity, income and taste rather than a correlative of one's pigmentation, hair texture and physiognomy.

But such hopes proved to be forlorn. Our optimism about social change was dulled successively by legal circumvention, the emergence of the ultra-Right with heavy financing, a cautious national administration for eight years, and the general atavistic drag on human nature that begrudges the sharing of advantages.

Meanwhile, there was an increase of migration to the urban North by 50% and the resultant cramming of the cities' slums. There was the parallel flight to the suburbs by the whites and their abandonment of city schools. There was the deterioration of urban conditions in every way, and the fostering of hostility led by police who were alien to the new black masses in the cities. There was the generation of a rapidly growing young black militancy in response to the futility of life in these urban ghettos.

The moral earnestness of the militants cause, despite the overtones of violence, fragmented conservative black leadership, dramatized the plight of urban blacks, polarized the nation politically and snatched the covers off everyone in the safe center. Nothing was higher on the national agenda in the early sixties than the problem of containing young black militancy and the surge of awareness that it inspired.

The question before us today is this: Can we salvage the hope of a nation in which cultural pluralism can allow this new black identity to thrive and at the same time preserve the notion of a common national destiny for all our people?

Come now and let us consider that the answer cannot be found in a temporizing response to a single crisis or a series of crises. The answer will require the leadership, black and white, to take high ground and view this in the broadest possible perspective. The alternative to a common national destiny is a more cruel and a more destructive dualism than the one we thought we were leaving in 1954. The passive accomodationist negro of 1954 is now supplanted by a better informed, politically astute and psychologically uninhibited young black whose boldness is matched by his contempt for presumed white superiority.

The thickening of the black center city means the crystallizing of a sub-culture of the ghetto, with more and more black children getting less and less education and falling farther and farther behind. These educational deficits are depriving them of the full benefit of what could appear to be a new openness toward equal opportunity in higher education. It is a hard fact to face, but it means also a hardening of a core of alienated young blacks, the response to whom will call forth the utmost in courage, intelligence and honesty on the part of all those in leadership positions.

Another alternative to a common national destiny, reasserted with imagination in word and in deed, will be a similar and escalating hardening of white attitudes on race. It does not take much to cause liberals to abandon a lukewarm commitment grounds. The blacks don't want integration! Then, the logic has gone full cycle: blacks rejected; blacks become difficult; whites retreat; blacks further rejected.. That is the simplest syllogism. The usual highly developed logic goes this way: the blacks are forced into cultural insularity. While insulated they are treated unequally. This insularity and this unequal treatment breed a sub-culture. The sub-culture is so repulsive that further insularity is encouraged. Then the young blacks add to the logic by averring that this is what they want, a world independent of "whitey".

In addition, the public schools, with their proximity to homogenized neighborhoods, serve further to galvanize the sub-culture. They are not only separate still,

but with such large numbers in the cities centers they are massive production stations for countless blacks who approach college entrance and the job market with blinding deficits. All of this makes discrimination look fair and honest.

Observe how much weight falls on the schools in this whole process. They have the power absolute over the pace of change. When schools--beginning with colleges that prepare public school people--make a commitment to a common national destiny, it can be stopped no more than one can sneak daybreak past a healthy rooster.

Finally, a failure to commit ourselves to a wholesome cultural pluralism--everyone doing his own thing, within a larger goal of a national economic, political and intellectual community is tantamount to a denial of the best that we know and believe. When we are standing on moral and intellectual tiptoe we do believe that the veneer of race and culture is thin indeed. The wisest among us have warned us from age to age that God has made of one blood all nations of the earth. From the days of Ruth and Boas we have felt the guilt of racism as the scourge of mankind.

But we know and believe more than that. We have a visceral knowledge that we are here playing with the noblest experience man has attempted, a democracy that concedes nothing to a man on the basis of blood, wealth or caste, but that is ruled by those ruled. It has weathered many a storm, and yet is persists. Some of us have a hunch that its basic premise that the powers of the state derived from the people is well founded on the idea that man is endowed by God with unalienable rights. It has taken a while to make this principle come alive, but it must. And when it does, unborn generations will rise up and call us blessed.

By Morris Keeton
Antioch College

On many American campuses today the difficulties with governance and communications are conceived in a way that gives little promise of lasting and constructive resolution. Since understanding a problem well enough to state what it is can be immensely helpful in grasping it and making headway in its solution, this defect of understanding is critical. I offer here a statement of the nature of some difficulties with governance and communications on campus and suggest an approach to resolution of many of the difficulties. The statement implies that shared authority and responsibility among all the major participant constituencies of a campus is a more promising pattern of governance than one of adversary relationships and arms' length negotiations.

In trying to provide this statement on governance, I think it important first to raise a caution. If there is one prime impression that has grown on me during recent studies on liberal arts colleges and on campus governance, it is that American colleges are astonishingly diverse. We hear many generalizations, for example, about students: how rebellious they are, how sophisticated they are, how idealistic, how conforming, and so on.. Yet between two given colleges there may be in some respects almost no overlap of student styles and priorities. At the University of Tennessee in Martin there may be no student who could have enrolled at Federal City College with reasonable happiness and sucess; and at Goddard, built heavily upon the idea of a student's finding his own identity and interests without parietal and curricular restrictions, few students who would have thrived at the University of Virginia. Not all differences are so dramatic, but a Simmons College (Boston) girl would find at Oberlin almost nothing she could recognize as social life. And many Oberlin students would be uncomfortable in a college like Simmons or Wheaton where social life means "dates" formally contracted for rather than the casual encounter over breakfast or as members of a committee planning a discussion of Black Power, a project in the Mississippi Delta, or a performance of electronic music. A Berea student would feel at home with the earnestness and social informality of Oberlin (after recovering from his surprise at finding beer served in the college Rathskeller), but the fierce pace of Oberlin academic life might oppress him and the strident quality of some student protests might strike him as unseemly.

Similarly, differences of climate and make-up occur as between the faculties of different institutions, their governing boards, their primary external constituencies. With these differences go curious consequences as to the meaning of different ideas about governance and communications. Surely, for example, the California regents are no more conservative politically than the trustees of Wheaton College. But two years ago the trustees of Wheaton began to meet periodically with student and faculty representatives for an extended "retreat" for candid discussion of student and faculty concerns.

A second datum essential as background to the statement I propose has to do with the disparity of perceptions of campus problems, objectives, and priorities among those who make up the body politic of the college or university. Surely it is no news that such disparities exist. Again, however, diversity prevails. In the Campus Governance Program of the American Association for Higher Education, the staff have been repeatedly startled with the specifics of this diversity: At one private liberal arts college concerns about the control of academic program were much more frequently expressed by students than by administrators or faculty. From a third to half of the students wanted the opportunity to initiate curricular reforms, to review existing courses, to initiate new courses, and to initiate changes

in the intellectual climate; whereas no department chairman mentioned these concerns, only an occasional faculty member did, and virtually none of the administrators did. On one item, the requirements for the degree, 52 per cent of students checked the matter as a current problem on their campus; and not a single faculty member, department chairman, or administrator did. Since checking an item as a problem did not imply agreement that a change was in order, but only that the item was a matter of current concern, these data suggest an appalling communications gap. On another campus, however, a community college, it was not students but administrators who showed the most frequent concern about dispersion of the opportunity to participate in curricular decisions (42 per cent of administrators to only 10 per cent of students) and about the quality of the administration (33 per cent of administrators, only 5 per cent of students).

Allowing for this diversity, we nevertheless found it characteristic of all 19 campuses in the Campus Governance Program that significant disparity in perception of problems and their priority existed among the constituents. The specific locus of the disparities varied considerably from campus to campus. Some of these are related to role; for example, on the average department chairmen checked problems in the domain of general institutional resources far more often than did students, or even faculty; but the chairmen checked significantly fewer concerns about the control of social and political behavior than anyone else except faculty.

Within the small sample of institutions studied, we saw community colleges, private liberal arts colleges, state colleges, and complex universities Curiously, the average number of problem areas checked differed substantially among the types of institutions: community college respondents checked the fewest by far; public institutions next most; and private liberal arts colleges the most--so much so that we have decided to revise our report and focus it more upon a campus's relation to others of its own type rather than to compare it with over-all norms.

When a factor analysis was performed to determine which types of problem area accounted for the greatest part of the over-all picture, a third fact emerged. We found the results falling out into two main groupings: problems of resources on one hand and problems of interactions on the other; and problems of resources were markedly more frequently checked than those of interactions. Also within the problems of resources, those of money and facilities and equipment were more frequently checked than those of the quality of faculty and students; similarly within the domain of interactions among people, the ones most frequently checked had to do with control of social and political behavior first and markedly less with control of academic program and with the characteristic interactions involved in teaching, counseling, respect for students, and the like. From my biased point of view, I would say that the subtler and most essential problems were the least mentioned and the tangible, easy ones most frequently noted. For example, on one campus's responses to the Activities Index and the College Characteristics Index we found a student expression of intellectual interests in excess of the intellectual press of that campus; yet in the checking of problems, all constituencies of this campus gave much more attention to the need for buildings, laboratories, equipment, and the like than to the need for better qualified personnel or better conduct of instruction. Another way of viewing these data is to say that the problems that are most crucial but least in the control of the respondents were checked most frequently.

In summary, these perceptual data suggest (a) varied and significant disparity of perception among those who make up each campus as to the nature of its problems, and (b) a tendency to identify the priority problems as the more highly visible ones rather than the subtler ones closest to the heart of the enterprise of learning and research.

My first reaction to this summary picture was one of some surprise about both the disparities of perception on particular campuses and about the relative neglect of the human factors in campus problems. On second thought, however, it seems to me that we have probably always had such conditions with us. Read, for example, Rudolph's history, The American College and University. Tale after tale recounts the chagrin of faculty or president with the misplaced emphasis and the recalcitrance of student priorities. One president of over a century ago said:

> Indulged, petted, and uncontrolled at home, allowed to trample upon all laws, human and divine, at the preparatory school...(the American student) comes to college, but too often with an undisciplined mind, and an uncultivated heart, yet with exalted ideas of personal dignity, and a scowling contempt for lawful authority and wholesome restraint. How is he to be controlled?

Pondering such reports, it seems to me that what is novel in the American collegiate scene today is not this disparity between student perceptions and priorities on one hand and those of faculty and administration and trustees on the other, but two further matters; viz., the disparity of views as to

a) who ought to decide what and by what procedures, and

b) by what or whose standards and purposes the decisions ought to be made.

Who should decide and how? Since 1915 the American Association of University Professors has worked steadily, not only for rights of professors (thus limiting administrative and trustee authority) but also for a substantial or controlling voice of faculty in specific types of campus concerns. Yet in 1966, when a task group of the Campus Governance Program visited 35 campuses selected as potential "hot spots" in conflict about faculty and administrative prerogatives, the group found an astoundingly widespread pattern of presidential autocracy and of poor communication between governing boards and faculty. These conditions prevailed in some very strong universities as well as in some new or weak institutions. These campuses were backward with respect to faculty voice in their governance, not to speak of being unprepared to make constructive use of the voices of students, non-faculty staff, and other constituencies.

At the same time that actual governing practices lag behind even the prevailing concepts of good practice, the challenge to these concepts has sharpened. Though the conventions about campus authority have been doubted by occasional critics far into the past, the climate has changed markedly in this decade. The proportion of critics has increased. They have had the benefit of mass communications to spread the awareness of their doubts. The increases in size, complexity, and multipurpose character of universities have made them more vulnerable than before to both effective disruption and legitimate criticism about their communications and their performance of educational tasks. Thus the challenge as to prerogatives in governance has not only grown, but has achieved support and effectiveness hitherto unknown in the United States.

The effectiveness of this challenge does not imply that the performance of colleges and universities has weakened. The critics often speak from a vision of heightened demands upon higher education. They complain, not about decline in old tasks, but about too slow a response to new responsibilities and

about a growing gap between the needs society has of higher education and its ability to govern and manage in ways that promise a commensurate service to the critical increase in need.

For a vision of what education can be, what colleges and universities are for, and to what ends those on campus might well share in governance, we cannot rely on our past for answers. The college of the post-Revolutionary era was one with "the emphasis on teaching rather than on study; on students rather than on scholars; on order and discipline, rather than learning..." Clues we can surely draw from our history, but the greatest of these probably is that the past was no golden age, but a prelude to a more complex and intricate present. This present is one of a single world society, still rocked by civil strife yet enriched by an array of local, regional, and national sub-cultures; one of vastly accelerated resource-exploitation, with a problematic growth in gap between "haves" and "have-nots" both within and among nations, and with a growth in distance between expectation and realization for many people; one of fantastically increased rate of growth of knowledge and population, both of which in turn contribute to an accelerated rate of change; and one in which, as a consequence of such conditions as these, the recognized need for intellectual services and for a liberal education of adults is at a peak and continues to rise. It is a time of such complex possibilities and such costly and diverse pitfalls that every party capable of helping will be needed. It is therefore a fitting time to ask what productive voice different members or constituents of campus might have in its governance.

In setting the question for discussion as one about a <u>productive</u> voice for these constituencies, I have pointed to a criterion variable for proposed schemes of governance. It is a criterion both abstract and vague. We can name easier alternative criteria: that of participant satisfactions, that of minimization of disorder, that of cost per student per period of time, that of growth in size and assets of the institution, and so on. But these criteria do not express what the governors of universities and colleges purpose to be and do; therefore, these criteria get at only a part of what interests us, or at something other than what concerns us.

The productivity in which we are interested is one of impact in relation to the objectives of the university or college. To reduce the vagueness and bring the abstraction to a particular application, we must then be able to discover what these objectives are and should be for the institutions studied, and how impact can be assessed in respect to them. Since these questions are not merely established or establishable empirical fact, but involve choices to be made by someone, and since the question of who the someone ought to be may itself be a disputed issue of governance, the specification of the criterion of good governance is a troubled problem.

Moreover, our concern for good governance is not merely one of effectiveness in having the impact desired, but one of gaining the impact at a relatively advantageous cost in the face of limited resources and often peculiar circumstances. To find a way of assessing relative cost-benefit ratios in these terms is another of the problems associated with this criterion of productivity.

Finally our concern is complicated by the fact that the voice which specific constituents have in governance may itself be a factor in creating the impact desired. For example, the role of students in governance may be educational and miseducational. That role has its costs, but the costs can be offset under some conditions and patterns of participation by unusual yields of the kinds of learning

or other outcome which the institution is designed to accomplish. For example, while current participant satisfaction is not itself the purpose of campus governance, it is usually an objective of college life to make the life of learning and of democratic association an attractive and rewarding one, in part because doing so is essential to motivating the future life of an intellectual, democratic society. Thus it is not simply immediate yield in relation to costs, but long-range benefit at advantageous cost that is sought. The governance of a campus is thus a continuous multiple feedback system in an unsteady state with changing objectives and rotating personnel.

If a "productive" influence whinin such a campus is our aim for each kind of participant in campus life, however, the criterion for ppraising different ways of participating is still undetermined until there is working agreement upon the objectives that college or university is to serve and the standards of performance by which progress on those objectives can be recognized. Productivity by what standards and to what uses or ends? we must ask. And of whose determination should these standards and ends be?

My proposal is that the sharing of authority recommended here should extend to participation in the determination of the ends and uses of the college, and standards for their achievement. In the past this prerogative has been left entirely to the chartering authorities, to current trustees, to determination by tradition, to a present leader or group of administrators, or the like. In a going institution any change in the exercise of prerogative may itself require either revision of the legal structure of the institution or accomodations within that structure to a new sharing of authority. In recent years these changes have sometimes come about after extralegal means had been used to change the de facto authority relationships. The point here is not to argue about the means by which this transition can best be made in different cases, but to say that the need for making the transition to an explicit new ordering of prerogatives is widespread, even virtually universal.

The alternatives to this new sharing of prerogatives are either imposition of old patterns, often against increasing resistance, or an anarchy of purpose and strategy within higher education. If imposition is attempted, it may have any of several quite different effects: It may effectively drive off opposition and unite the campus for the imposed ends. This effect may seem helpful at first, but it deprives that campus over the long run of the stimulus of the opposition and may render it less productive even in relation to the imposed objectives. And if those objectives are in any way defective, the imposed settlement entrenches that mistake. A second type of outcome is one in which the imposed solution represses, but does not eliminate, opposition. It may create apathy, non-cooperation, mutual interference, and substantially less effectiveness for both the official purposes and the opposition ones than could be achieved otherwise. A third possibility is disruption and violence. For the system of American higher education as a whole, it is predictable that a continued imposition of old patterns of governing prerogatives will amplify these already growing varieties of depressed productivity.

The alternative of sharing authority more widely is not an easy one. It will certainly entail great confusion. While it may diminish the violence of confrontations that might otherwise occur, it can be expected to increase the conflict and controversy about how best to share prerogatives and implement the resulting agreements. A variety of campus policies will emerge since different campuses will resolve upon different combinations of purpose and priority and will recognize that different types of student body, faculty, trusteeship, and the like. The multiplicity

of"uses of the university" is already a matter of painful concern among critics of American higher education who fear for its focal intellectual function; and this sharing of governing prerogatives is likely to accentuate the causes for such concern. Yet I believe that the growth of the intellectual potency of campuses requires, not a reduction of responsiveness to the increasing clienteles of higher education, but a search for collaborative ways of meeting the disparate priority concerns which they bring along with their interest in knowledge and the intellectual life.

Must this search proceed as a blind groping? Is its outcome to be less a matter of reasoned response to new possibilities for human fulfillment than one of accommodation among competing political forces? I believe that current controversy and turmoil about campus governance is, in great part, symptomatic of a need for fundamental reconception of the nature and functions of colleges and universities. Let me try to express this need in bare outline and without documentation.

The ideal of liberty, equality, and brotherhood is at the root of American society's worth and achievements. Yet as this ideal was understood and applied in the 1700's, it was seriously defective. The ideal was repeatedly interpreted in ways that required modes of conformity incompatible with either mutual respect in brotherhood, equality of opportunity, or liberty of the individual to realize his own potentialities and choose his own way of life. In both civil rights and political rights, our subsequent history has been a record of re-interpretation of the ideal to filter out the residues of earlier history which limited our realization of the ideal. Less noticed have been the ways in which colleges and universities reflected and even entrenched, not only the ideal, but also the restrictions upon its achievement that characterized American society.

Another way of seeing this same set of historical relationships is to see that our forefathers, in seeking a freer and more fulfilling life for mankind, imposed an inordinate degree of cultural homogenization upon society. They fled from religious conformity upon their communities. They sought cultural and political autonomy for minorities, but imposed their own cultural and political standards upon Indians, Negroes, and other American minorities. This homogenization has a dulling and depressing effect upon the life of the society, but it also constitutes an enslavement of, and disrespect for, the human individual. This aspect of American society has also had its reflection in the colleges and universities.

To achieve an improving life, American society has experienced a curious elaboration of communication, coordination, and control at the same time that its economic, political, social, and even family life has undergone great diversification and democratization. If there is to be further progress in liberty, equality, and effective mutual concern, we will surely require patterns of relationship and interaction that are less authoritarian and more decentralized than those we have inherited from forefathers who came of more homogeneous and authoritarian cultures.

In the late 20th century the institutions of higher education are probably among the seminal institutions of American society. Who can muster the critique, the knowledge, the resources, and the resolution for reconstitution of society along the lines just indicated? It is hard to imagine that the churches, the political parties, business institutions, or new private associations can and will muster these influences without substantial leadership and assistance from the institutions of higher education. But if colleges and universities are to play this role, they will have to re-make themselves.

Where and what are some of these needed changes? In respect to the professions of the university, we have confused respect for expertise and competence with the idea of accepting control by the professional over many matters that are not integral to his expertness; for example, over the purposes to be served by the institution and the programs using that expertise, over the philosophy and methods of education in the things in which he is expert, and over the management of the activity within which his expertness applies.

In respect to the administration of the university, we have confused the fact that there are expert managers with the supposition that they can or should govern and organize in a hierarchical, directive manner.

In respect to the nature of learning, we have linked the learnedness of the professor with the notion that others best become learned by imitation, hearing about it, directed activities led by the learned man, or other means that may be inappropriate to contemporary possibilities. Instruction, as it is typically conducted on campus today, places much too little reliance upon learner initiative and self-direction and upon collaboration among learners. Faculty roles are often so conceived, in respect to students' learning, as to minimize the critic-consultant functions of the faculty member where he could be most productive in eliciting scholarship among students. He is too much the authority on what is so and too rarely the evoker of inquiry and reflection among students.

In respect to the purposes and priorities of universities, we have inadequately explored the productivity of collaborative enterprises in which there is concurrent pursuit of diverse objectives. In such enterprises, the expertness of the professor and the managers are again in need of appropriate expression, but should be limited in their exercise so as to respect the autonomy of those being served and affected.

In respect to the contexts of learning, we have not adequately heeded the impact of cultural context and the demands implied by a policy of respecting cultural diversity and eliciting from its presence an enrichment of the learning potential of the campus. For example, the effectiveness of some small colleges seems related to the combination of security they provide to students in religiously or culturally congenial peer settings and the challenge introduced in other ways (by faculty, by imported outsiders, by exposure to sharply different environments nearby, etc.). If the subdivisions of campus were approached with this concern in the forefront, rather than focussing merely upon size or subject matter, a greater enrichment of learning might result than at present.

The need for changes of campus governance, then, are not merely a matter of temporary, superficial adjustments. The need is rooted in fundamental deficiencies of colleges and universities--deficiencies of conception of themselves as well as deficiencies of performance. This is not to deny that their present life and work are a substantial improvement over that of predecessor institutions of earlier decades. It is rather to recognize that a still more difficult mission lies ahead. Our society has still unrealized possibilities with the fulfillment of which colleges and universities are uniquely competent to assist. Our present patterns of governance limit and interfere with this realization. We should therefore give priority to the invention and testing of ways of governing that will further this enlargement of the service of higher education to society.

AN INSTRUCTOR-INTERN PROGRAM AT THE JUNIOR COLLEGE LEVEL

By Frank G. Pennypacker
Peirce Junior College

The success of a "program", whether it be in education, athletics, or any other of the many areas of concern today, depends upon an existing need. Junior colleges are extremely aware of the successes and failures of attempted programs in both the curricular and extra-curricular areas for students and faculty.

The problem of preparing a good teacher for the junior college level is more difficult than for other levels. Let us assume that a prospective teacher has all of the attributes necessary for effective teaching. However, the individual students we in junior colleges work with are a distinctive, puzzling group. The old cliches that they are not Ivy League types - or the other end of the spectrum, unteachables - has been used by all of us in trying to fit them into a pattern, a mold. This mold, if we could define it and be sure of it, would make our objectives much easier. But you can't fit the junior college student into a mold and this is an important reason why we at Peirce Junior College initiated our Instructor-Intern Program.

There were other reasons. Impetus was given to the actual planning when we recognized we had an opportunity to fill a part-time teaching schedule with Instructor-Interns.

Dr. William Hamilton, Vice President and Academic Dean of our college, has long been an advocate and firm believer in this type of training program which would give young men and women who wish to enter the junior college teaching field an opportunity to gain some teaching experience before they are thrown into the classroom situation. There is no doubt that his awareness of the need for teacher training is based on his own experience as a "practice" teacher - and his observation of the classroom performance of his junior college faculty.

Most junior college faculties are recruited from two major sources:

a. High School teachers who wish to raise their academic position in the hierarchy.

b. Four-year college and University teachers who for many reasons want to step down in their academic positions in the hierarchy.

There are no opportunities for practice teaching on the junior college level in the immediate geographical area from which most of our faculty are recruited. There is no college in this area that has provided for teaching - intern programs on the junior college level on a degree related basis.

On the basis of the concerns expressed above, the following steps were taken to develop our program.

First, we established as a philospphy for the program the objective of providing teaching experience on the junior college level with appropriate support by faculty and administrative advisors.

Second, we have solicited and established sources to provide such persons for our program. Our sources have been the University of Pennsylvania and Temple University. This does not preclude the consideration of sources from other universities.

For applicants to be considered for our program, they must be in the final phases of their Master's Studies, or have just received their Master's Degree and have had no junior college teaching experience. They must be able to coordinate their teaching assignments and advisory periods at our college with their classes at the Universities.

Transcripts of their undergraduate and graduate work to time of application must be submitted together with references. Our college's Teacher Qualification Sheets must be completed and on file with us. Applicants must have a personal interview with the Vice President, the Dean of Instruction, and Department Head.

You will note that we do not ask the applicants to declare any intentions as to whether they would become applicants for a regular faculty position at our college or intend to remain in the teaching profession after this exposure.

Our first intern program was initiated in the fall semester of 1968. Through the resources of the University of Pennsylvania we were able to recruit three young men in the final phases of their M.B.A. program in the Wharton School. They teamed up to teach business management, economics and insurance. Each had 2 classes (six credit hours of teaching) during this semester, plus assigned office hours at our college coordinated with their teaching and graduate study at Penn. One of the three was appointed Team Coordinator. A Faculty Intern Advisor and Associate Advisors were appointed. Their functions were to provide:

a. Preliminary teacher orientation and opportunities for classroom observation

b. Assistance in lesson planning and techniques of college teaching

c. Assistance in the use of audio-visual aids

d. Assistance in classroom management

e. Constructive supervision of classroom teaching and conferral on teaching problems

f. Periodic evaluations of teaching performance

The Team Coordinator acted as liaison between the teaching interns, advisors and faculty. He assumed responsibility for maintaining team morale, assisting or maintaining communication on personal and professional problems and supervising attendance.

All of these men were paid on an hourly basis for time spent at the College in conferences, class observation, and other nonteaching hours related to their professional preparation as teachers. They received compensation on the same basis as lecturers for their teaching responsibilities. They were not concerned about nor did they receive credit from the University of Pennsylvania for the program. Our college assumed full financial responsibility for the program.

In February, 1969, the program was continued after the first three interns left to complete their dissertations by the employment of two other men in the areas of history and economics. These interns were handled on an individual basis rather than as a team.

In September, 1969, we continued the program with the employment of business subjects and English. One of these interns I am happy to say is a Peirce Junior College graduate who completed his baccalaureate degree at Northern Michigan, and is now engaged in graduate study at Temple University.

Of the seven men in the program since September 1968, including the two presently at our college - these decisions were made by the interns:

Two have joined our Evening Division Faculty.

One has accepted a position on another junior college's faculty.

Two have accepted positions in the business world.

The two who are presently teaching at our college both have declared intentions of remaining in the teaching profession at the junior college level and have asked to be considered as full-time instructors at our college as of February, 1970.

The results in the classroom are the most gratifying and possibly of more interest to you. In every instance, the interns have proven to be very competent and extremely well-trained in the disciplines in which they taught or are now teaching.

The reactions from the students are very favorable. These young men are exciting and capable teachers. They devote much more time than we ask from them to lesson preparation, research, student advisement, and help to the students on an individual basis.

On their own, each intern who has left us has prepared a very timely paper with a highly constructive critique of our college and presented it to the administration after finishing a semester's teaching experience. These interns seem to be able to establish great rapport with the student body and the regular faculty. The students like the non-generation gap; the faculty find them innovative, vital, fresh and suggestive. But in all cases, they are eager to learn about junior college teaching and literally pick the brains of the older faculty members.

I, as an advisor, find them open to criticism and to suggestions for improvement. They are eager to stimulate learning. I find them lacking only in techniques that are acquired by actual experience.

When I have had sessions after observation of any of these interns, I have found no dissatisfaction with their knowledge of the subjects they teach. After several sessions and discussion, I realized that each had found the individual method that is effective and workable for him. Their one major problem as students in graduate programs, is to get down to the level of undergraduates of the junior college level. Several interns became disheartened, then truly anxious. But with their willingness to learn, their getting to know the students, their realization of the ability and the resultant performance demanded from our students, their immediate misgivings gave way to earnest enthusiasm and personal satisfaction. They are bright young men!

In all my talks with interns, I am lavish with praise, repeating especially any laudatory remarks that I have picked up unsolicited from their students and all suggestions are made with a prefactory remark such as, "If you are having trouble, or feel dissatisfied with such and such a situation in your classes, an old trick of the trade that you might try after you have up-dated the technique is...." And so I give suggestions, firmly but kindly and sincerely.

If you are palnning an Intern-Instructor program at your college, I would suggest the following guidelines:

1. Make your interns aware of the philosophy of your college. Outline and be firm with housekeeping and necessary regulations to which they as well as all of your faculty must adhere.

2. Be patient, empathetic and helpful, but never dogmatic and authoritative.

3. Listen to what they, the interns, have to tell you about your college and its students.

4. Suggest, don't demand, methods to improve their teaching techniques.

5. Be honest and fair in your evaluations.

6. Never hold up another teacher of the same department or any other faculty member as the paragon of good pedagogy, the ultimate, the quintessence.

7. Make sure your interns are presented to and accepted by your faculty on an equal social and professional basis.

8. When making class observations, increase the visitation time in their classes with each successive visit. A few minutes is long enough for the first baptism of administration.

9. Don't dog them! After you are rather sure they are coming along, allow them to seek your help and advice on their own.

10. Encourage them to participate in all college activities, faculty meetings, social events, and other facets of the college in which they indicate an interest.

11. Above all make sure your interns know as much as possible about their students. Urge them to peruse students' records, advise individual students, consult with other faculty about their students.

We, at Peirce, have many reasons for continuing this program. Certain colleges such as Penn State's Capitol Campus have evidenced a great interest in our program and we hope may be able to provide another source of interns for us in the future.

The shortage of trained instructors in the junioe college field is becoming increasingly critical. We at Peirce believe that we have and will continue to contribute valuable assistance in such a way that teacher csndidates will derive satisfaction from their success in this field.

Above all, we have evidence that our program encourages some of these candidates to stay with our own institution and to move into other collegiate areas. While our program has been successful, it can and will be improved. Each institution which establishes this type of program should fashion it to fit their individual needs, resources, and desired results.

THE STUDENT AS COUNSELOR AT HARRISBURG AREA COMMUNITY COLLEGE

By Robert R. Pyle
Harrisburg Area Community College

When we considered the significance of the numerous difficulties that many entering freshmen experience (especially those from a minority background) then our responsibility to inaugurate a program of preventive or anticipatory counseling became evident. It seemed to us at Harrisburg Area Community College that the needs of our students were defined to the extent that a broad program of preventive mental health was not only realistic but could considerably reduce "unhealthy" responses to the psychological tensions normally experienced during the transition from high school to college. These frustrations are frequently most acute with those students whose life-style is significantly different from that of the bulk of the student population.

Reaction to Stress: A Model

G. Caplan maintains that an individual in resolving a crisis (an upset in his psychological or emotional equilibrium which is unusual for that person) tries various inappropriate coping mechanisms in an effort to reduce tension and to return to a state of psychological equilibrium. (G. Caplan,1962) If an individual is successful in reducing the tension which is precipitated by the crisis through adopting new and healthy behavior patterns, then the possibility that the same behavior will be elicited in the future to resolve a similar crisis is substantially increased. That is, the specific healthy response will generalize to his larger day-to-day experience. Obviously, this model does not account for all the various behaviors that a student may demonstrate. A similar crisis, occuring some time in the future, might result in a vastly different set of behavior (s) to cope with a similar problem. Following a traditional operant conditioning model, a stimulus, or crisis situation, elicits many response patterns, on of which reduces tension. (Caplan, 1961) Simply, the reduction of tension serves to reinforce or reassure the probability of a particular response, providing that the same stimulus and environmental conditions occur in the future. The point is that a principle can be derived from this set of conditions. The crisis situation can be a meaningful learning environment if the appropriate "healthy" response for reducing psychological anxiety is reinforced. (Leviton,1967)

Of importance for our consideration is a related concept which, simply stated, maintains that there is a tendency for the individual to seek help from others as tension or anxiety rises during this critical period. At Harrisburg Area Community College significant others include teachers, division counselors, peers, possibly parents, and student personnel workers. The institution's response to the need that existed for a peer counseling relationship was (and is) an attempt in resolving these several problems.

The peer has a marked advantage among these various significant others because he is usually the first individual to be sought out by the troubled student and, therefore, may be able to propose healthy approaches or response patterns which have the effect of reducing psychological tension. At the operational level, the role of the significant other is limited in that he only provides the minimal assistance needed to guide the other student in a more appropriate problem-solving direction. This is effected by intervening only in those cases where the troubled student is observed to be using maladaptive coping responses. The several general functions of the significant other person should include

1. an awareness of predictable crisis periods (example: mid-term time)

2. know when (and how) to provide supportive counseling

3. help other students learn how to learn

What are some of the typical crises associated with the initial contact with the new environment? Frequently when the student leaves home for the first time he experiences culture shock (i.e. exposure to and contact with different ideas and people) as well as idenity problems. That is, the experience of leaving the more structured home situation in which they were more dependent upon parents (or other cues in their subculture) for the relatively autonomous life on campus, even though they may return home for rest and food, is another area of dissonance that occurs between the ethical and social codes of behavior followed at home (especially if located in the inner city) and those that prevail on campus. Many new students simply need a friend to provide support, guidance and direction in various problem-solving concerns, such as the drop=add process, location of specific student services, and in the visual recognition of professional staff members. In addition, there is overriding fear of failure. Most new students react rather strongly to the constant evaluation that they must undergo, especially that by a middle-class professor, who by virtue of position is a part of the "establishment."

The Training Process

A number of lay as well as professional training programs have been implemented, but only a few have systematically assessed their results in terms of what actually transpires as related to a variety of criteria that measures constructive client outcome or change. (Carkhuff, 1968) Those that have assessed dimensions such as the counselor's communication of empathy, warmth, regard or respect, and genuiness, and, to a lesser degree, dimensions such as concreteness or specificity or expression, self-disclosure, and openness (the outcome research which is summarized in Carkhuff & Berenson, 1967, and Truax and Carkhuff, 1967) have yielded the following conclusions.

1. There is an increading volume of literature that supports the hypothesis that lay persons(i.e. cellege sophomores) can be trained to function as minimally facilitative levels of conditions related to constructive client change over relatively short periods of time. Both carefully screened college undergraduates interested in school guidance activities and unselected volunteers from the school, hospital, and community at large demonstrate change in the direction of more facilitative functioning on dimensions related to constructive client change or gain in training periods ranging from twenty hours to one year. (Berenson, Carkhuff, & Myrus, 1966; Carkhuff & Truax, 1965; Riessman, 1965; Martin & Carkhuff, 1968.)

2. Studies indicate the greater effectiveness of lower level guidance training programs (i.e. where the emphasis is on "shaping" the behavior of the trainee) in effecting trainee growth. (Carkhuff, 1968) The point is that both trainees and clients demonstrate Measurable personality growth when engaged in an action-oriented program (i.e. where individuals

learn how to do something about problems, their own as well as others). Even though pertinent research is just starting to be replicated, there are several directly comparable studies. At the completion of training, using both identical and converted indexes, lay trainees function at levels essentially as high or higher (never significantly lower) and engage clients in the counseling process at levels as high or higher than professional trainees. (Anthony, 1968; Berenson et al, 1966; Carkhuff, Kratochvil, and Friel, 1968. In addition, a comprehensive summary of the most recent research is reported by Carkhuff, 1969.)

Trainees

Obviously the students employed as student counselors are, in general, less intellectual, less educated, and tend to come from lower socioeconomic classes than professional counselors, who by virtue of education and vocation are at lease middle-class. A major concern was the need to engage only those students who are motivated to help by other than the all too frequent needs of the professional to find position, status, and perhaps some"handles" on his own psychological experience within the helping role. More often than not, the student counselor is simply motivated to help because he is most in contact with the need for help, for himself, for others. The problem largely focused on how to help selected students translate their natural concerns into a sound helping process.

Trainee Selection

While the selection process can vary, at Harrisburg Area Community College an intensified effort was made during the spring of 1969 by the entire professional counseling staff to select those students (initially eleven) who exhibited a sincere regard for others, tolerance, and ability to accept people with a different value system, a healthy regard for self, a warmth and sensitivity in dealing with others, and a capacity for empathy. In addition, the Edwards Personnel Preference Schedule was administered to each potential student counselor with the intent of assessing those dimensions considered relevant in the selection of individuals for a helping responsibility.[1] The point is that student trainees, reanging from self-selected volunteers to perceived psychologically "healthy " students, were able to effectively employ the training experiences which were provided them during May of 1969.

The Training Program

The student counselor training program at Harrisburg Community College is geared to producing student counselors (from eight to twelve, depending on population needs, resources, and availability) who can effectively relate to other students in need of help and facilitate positive movement or growth. During the training period, approximately 30 to 40 hours, the focus centers around two phenomena:

a. sensitivity training or the acquisition of interpersonal skills

b. the change in the personality and attitudes of the trainee himself

[1] The E.P.P.S. dimensions were: autonomy, affiliation, intraception dominance, and aggression.

The training program is built around the core conditions of understanding, regard, and genuineness, both in the didactic teaching for help and the experiential base provided the trainee.

Because we were desirous in having the student counselor trainees function effectively in their new helping role they were given considerable practice in that role. During the integration of various sources of learning, the trainees were exposed to those behaviors which promote help and to those which do not, being reinforced differentially. The training process explicitly and systematically taught those specific skills that one considers important while providing continual support for those positive changes in trainee behavior which have been effected by the training process.

In summary, the person of the student counselor and the treatment which he offers appear to have the following distinctive advantages when compared to his professional counterpart:

a. the increased ability to enter the milieu of the distressed

b. the ability to establish peer-like relationships with the needy

c. the ability to take an active part in the client's total life situation

d. the ability to empathize more effectively with client's style of life

e. the ability to teach the client, from within the client's frame of reference, more successful actions

f. the ability to provide clients with a more effective transition to more effective levels of functioning within the larger social system. (Carkhuff, 1968)

In essence, the student counselor, when appropriately employed, can be the human link between an educational system and the needy.

COMPUTER-AIDED TEACHING: A DEMONSTRATION OF TECHNIQUES

By Louis D. Goodfellow
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Pennsylvania State University

For years I enjoyed small classes in which I could sit and talk with students, giving attention to individual needs. Ten years ago I discovered myself standing in front of a class pitching to the mythical average student. My old confortable and reasonably-effective patterns of teaching had become impractical in the drift toward mass education.

However, the increase in class size is not the only change demanding new patters of teaching. Students' attitudes and anxieties are becoming much more difficult to ferret out and deal with helpfully. Much time is required to keep up with the repid pace of cultural changes and with the exciting new developments in our profession. Without considerable investment of time and energy, a teacher runs the risk of becoming a human tape recorder. Somehow, we must discover new techniques to preserve certain educational values which appear threatened by the present situation.

In 1960 I wrote a paper setting forth these threatened values. The present paper relates my efforts to preserve these values under changing conditions.

I should like to call attention to three aspects of the student instructor encounter: rapport, communication , and involvement.

Rapport: Clinical psychologists have produced ample evidence to show that the personal relationship between client and therapist is of fundamental importance. Might not this be true also for the student -instructor relationship? I suspect that the clinical insights gained from therapy can be applied to academic learning. Rapport is a two-way deal. We need to know students and also to give students a chance to know us. Now please don't assume that this is impractical in large classes. Of course, it would be so under old patterns. This is just the point. New patterns must be developed

Communication: A teacher needs to know about student reactions, but, more important, he needs to have available the facilities with which to respond. A student needs to know precisely how he is progressing, but this feedback to him may be of minimal value unless he is encouraged and enabled to respond ot it.

Involvement: For a generation, educators have been talking about the involvement of students. Today, it is the students who are excited about getting involved in everything under the sun. I am interested in channeling this energy into involvement in their own learning.

In the techniques I am about to demonstrate, I make use of:

1. student assistants. I believe that students are both able and willing to assume important leadership roles.

2. mechanical aids. The computer can take over many clerical functions. Its analytical and organizational potentials can uncover significant details which might be overlooked otherwise, both by students and by instructor.

The program provides for each student a type of feedback quite impracticable in pre-computer days. As an illustration, consider an analysis of the kind of errors made by students in an examination.

In the usual classroom situation, the instructor's criticism of a students' work is general and is directed to the entire class. In contrast, computer feedback to students can be specific and can be directed to each individual conferences, reaches only a part of the class. The computer feedback can reach everyone. The data-handling capacity of an instructor may limit his awareness of individual differences among his students and thereby the effectiveness of his teaching technique. The phenomenal memory and organizational potentials of the computer can make use of <u>all</u> available data.

New and more appropriate patterns which are made possible by modern tools yield clues to the management of learning, clues often unused at present, even in small classes. In this and in many other ways, the computer can assist the teacher in developing the warm and stimulating atmosphere which is a prerequisite to good teaching. Contrary to the common stereotype, the computer can contribute to the personalization of education, not its mechanization. Likewise, the value of a teaching machine depends, not on the mere mechanical device for presenting the material, but upon the ingenuity of the teacher in programming learning. To restate our thesis, automation does not necessarily lead to depersonalization. Whether an instructor finds a student's average by pencil-and-paper arithmetic or by computer is irrelevant. Whether the student is identified by name or by number may have a very different effect. Rapport depends upon the student-attitudes developed rather than upon the tools being used. Because attitudes are subtle and not easily controlled, an instructor needs the assistance of modern tools.

The key provided by these techniques is setting the stage so that students and instructor can react to each other in a meaningful way. Student assistants and the computer can sift significant facts from the mass of superficial data and direct instructor-student interactions into very specific channels. As examples, let us consider two examples:

1. Setting the stage for student reaction to the feedback they receive?

We prefer to use the open-book <u>objective</u> examination for these reasons:

1. Because the questions are problem-centered, student attention is focused on understanding, not memorization.

2. The availability of books and notes gives a sense of security and resembles more nearly a real-life decision-making situation.

3. A student's need for organization material and learning to use books and notes effectively is high-lighted.

Following the test each student receives a personal letter analyzing his work and suggesting remedial procedures when appropriate. In addition to general items the letter contains a comment on each question missed, inferences which might be drawn from the incorrect alternative answer chosen, and a summary of the type of errors made. Other comments when

applicable include the instructor's regret that the student was absent on the day the particular question that he missed was discussed. Other comments call attention to similar errors made on previous tests. The student then is asked for his comment on each error, showing exactly why he made the particular mistake. These comments are made on pre-punched cards, and automatically a notation of a missing assignment becomes available.

2. Setting the stage for instructor reaction to feed-back from students.

We have found an oral final examination both feasible and enjoyable. Essay questions are distributed two weeks before the scheduled interview. Because questions are coded and related to a student's work during the term, the program channels the efforts of the instructor into the making of consequential decisions by supplying him with the standing of each student just prior to the final and with the examination grades required to change the student's status. In the first place, this program will enable the instructor to bypass a number of papers, because the student's grade cannot be altered by the outcome of the examination. Secondly, it reduces greatly the discriminations required of the instructor. If only an A or F will alter the student's current grade, the decision in most cases may be easily and quickly made.

A little statistical computation will reveal the great amount of labor saved by thi device. If, for example, the final examination determines one-fourth of the course grade, and grades are distributed normally (by which we mean that the distribution resembles that of Penn State sophomores), 26% or students will be unable to raise their grade, and an additional 20% will need an A+ in the examination to raise it. A similar situation exists for lowering a grade. In most cases the grading is simplified, permitting more careful attention to the students whose examinations are pivotal.

These two examples selected from a group of nine now in use will illustrate how teaching may become more effective and interesting when adequate programming is done and the appropriate aids (student-assistants and the computer) are available.

PLANNING A DEVELOPMENTAL CURRICULUM

By David J. Jobson
Community College of Philadelphia

One of the basic characteristics of a community college is its avowed commitment to an open-door admissions policy.

The community college has been called the only educational institution that can truly be identified as an American social invention. As a publicly supported social invention, it would be expected to reflect the American value system. The open-door admissions policy in effect says each individual should have the opportunity to progress as far as his interests and abilities will premit.

Unfortunately, however, many of the students that come through this open-door have deficient pre-college preparations and as national and Community College of Philadelphia attrition figures suggest, their abilities do not permit large numbers of students to advance very far. In short, experience has shown that students whose abilities have suffered prior neglect have only the most marginal chance of success when placed in traditional transfer or career college curricula. To many students the open-door becomes a revolving door that is yet another defeating experience.

Perhaps the real tragedy is that many fail not due to lack of intellectual ability but because of specific causes that can be remedied. These causes include lack of clear goals, difficulty in adjusting to the more demanding and independent ways of college study, and probably most importantly, weakness in basic skills.

If looked at objectively, perhaps an open-door policy that admits large numbers of marginal students into traditional curricula is not only a cruel disservice to the unprepared whose chances of success are minimal, but also may have a detrimental affect due to the drag they assert on the progression of classes that should be attuned to the abilities of students with expected educational qualities.

It is not realistic to assume that large developments will alter this situation in the near future. Institutional research indicates that characteristics of our entering Freshmen classes have changed little over time. There is little reason to expect a drastic improvement in the quality of education in the public or private Philadelphia high schools. Many better high school graduates will continue to prefer direct admission into more prestigious four-year institutions. The movement to increase the educational level of the nation's population will continue as higher percentages of high school graduates aspire to college.

Perhaps there is some comfort in realizing that the Community College of Philadelphia is not alone in confronting this problem. For example, a 1965 survey of California Public Junior Colleges found that of 270,000 college freshmen, almost 70% failed a qualifying examination for Freshmen English Composition. Three out of four students were enrolled in mathematics classes that were presenting high school material.

Approximately 50% of students enrolled in remedial English courses earned a D or F and only 20% eventually enrolled in college credit courses.

As this last statistic may indicate, there is equally devastating data to indicate that both peacemeal remedial courses and intensive Developmental Curricula historically have had little success in salvaging the marginal student. In short, students exposed to remediation have not exhibited greater success when eventually enrolled in collegiate offerings.

The failure of other programs, however, does not change the realities of the plight faced by many (perhaps most) of our students, nor absolve Community College of Philadelphia from its obligation to attempt to improve their chances of success.

After digesting the experience of other Developmental Curricula, it was determined that Community College of Philadelphia would adopt those characteristics associated with the more successful programs and build on them using the ideas of our own faculty and staff.

The resulting pilot project limited to 160 incoming students is unique. It features block scheduling, team teaching, large-group small-group instruction, locational concentration, course sampling, micro labs, extensive use of AV equipment, student paced instruction, intensive counseling, and other innovative techniques.

Some of our best faculty have committed their experience and resources to the success of what may be the most challenging and exciting teaching under-taking on this campus. It may also be most significant in pointing the direction to future Community College of Philadelphia efforts to meet the challenge of the open-door.

Administrative Background

After two years of operation the Community College of Philadelphia staff became asware that peacemeal attempts at remediation were less than successful in remedying the massive problems brought to our open-door college by a very large proportion of our student body. Isolated remedial courses combined with counseled light student loads were not sufficient to convert our revolving door into a truly open door. Sensitive to this difficulty the President of the Community College of Philadelphia in November, 1967, appointed a committee of nine members of the General Faculty and charged them with recommending a comprehensive program of remedial educational services including pre-admission service. The composition of this committee as appointed by the President, reflects the support given to its efforts by the senior administration of the institution. This committee included the Dean of Instruction, the Dean of Students and the Director of Admissions. Teaching Faculty representatives were selected on the basis of their backgrounds and experience with developmental programs. The disciplines included--English, Math, Psychology and Counseling--were representative of the building blocks comprising many developmental curricula throughout the mation.

An early report of the Remedial Education Committee established basic guidelines which were followed throughout the remainder of the planning stage. This interim report advocated a two semester sequence of developmental courses for that segment of our student body which is inadequately prepared to cope with our present offerings. This program was foreseen to include a language arts component involving speech patterns, writing and reading skills; a mathematics course that would meet more frequently than the traditional Math 101 and a Ps ychology course that would be strongly supplemented and supported by the staff of the Counseling Center. The committee urged that the program be intensive, involving in excess of 20 hours instruction and supervised work weekly. Student participation in regular student activities was to be encouraged. The use of programmed materials in self instructional techniques was deemed worthy of further consideration. In recruitment of staff in the concerned areas, it was noted that people who have communicative abilities not common to all members of the profession should be sought. Teachers should be interested in this kind of a program. Some or all of the program should carry credit at least in certificate programs and the committee recommended that evaluative procedures be set up before the initiation of the probram. Also incorporated in this interim committee report was a pupil cost estimate which indicated the ability of the

institution to support such a program and speculated on the availability of outside funding to support pre-service or in-service teacher training.

The final report of the Ad Hoc Committee on Remedial Education Programs is dated May 21, 1968. In this report the committee recommended the institution of the then entitled "General Curriculum" in the Fall of 1969. The courses that were to compose the curriculum were identified and the committee expressed its beliefs that this curriculum would prove a worthwhile post-high school educational experience for students who do not go on to further college work. However, the program is planned to enable students to go on to certificate, terminal or transfer work at the end of the second semester or in some cases, at the end of the first. The committee advised that detailed course development be undertaken immediately and that planning centers around a block program of extensive student commitment to the campus, that tutorial help be available and that large-group small-group instruction be used when appropriate. Special concern was indicated for the continued investigation into self-instructional materials and for administrative attention to space and physical plant. It was further agreed by the committee that students barely admissible be those offered enrollment in this program. Classes of 20 were suggested for smaller group instruction. The importance of accurate record keeping for the evaluation of student performance and program effectiveness was emphasized.

In the summer of 1968, the Divisional concept was implemented. The five Division Directors in addition to their responsibilities for day and extended-day instruction, community service instruction, continuing education instruction, and summer instruction were assigned responsibility for continuing with detailed planning and implementing of the Developmental Curriculum on the basis of the broad general guidelines set down by the committee. Although the committee continued to function for some time thereafter, its role changed from that of a body that makes developmental curriculum policy recommendations to a sounding board off which the Division Directors' efforts as coordinated by the Assistant to the Dean of Instruction, were reflected and criticized. The committee in effect reacts to the proposals of the administrative structure and improves them through suggestions grounded in their own experience and researches in the area.

Nature of the Program

The energies of the situation demanded that several decisions be made at an early date. The coordinator of the Developmental Curriculum requested that the Counseling Center work closely with the Director of Admissions to determine which individuals should be channeled into the Curriculum. The general guidelines given to these two groups by the coordinator of the Developmental Curriculum were these:

a. take the four hundred least qualified students whom we would however ordinarily admit to the institution on a reduced load basis (the bulk of the reduced load probably would have been individual remedial courses in previous years),

b. from these four hundred students who would ordinarily have been admitted to the college yet deemed least likely to succeed in their college experience the Director of Admissions was to randomly select 160 for the Developmental Curriculum and a comparable number for the control group. Initially the Counseling Center desired selection of the group of 400 on the basis of objective criteria such as ACT Test scores.

However, the Director of Admissions insisted and eventually persuaded the Counseling Center that in many instances non-quantifiable factors may be of overriding importance as predictors of eventual college success. These factors would include the quality of the high school attended; the curriculum in which the student was enrolled in the high school; the student's record of participation in high school and in extra-high school activities; letters of reference from high school counsellors, teachers and others; short essays written by applicant, and finally subjective evaluation of the student's interview by members of the staff. Either the Director of Admissions and/or the Assistant to the Director of Admissions personally read and evulated the application and credentials of all students considered potential candiates for the Developmental Curriculum and the control group. With few exceptions the Counseling Center had personal interviews with each of these students. Because the students, in effect, were accepted for the Developmental Curriculum instead of the curriculum for which they applied, great care was taken in the wording of the brochure describing the Developmental Curriculum and in the letter of acceptance into the Developmental Curriculum with which it was distributed. These were designed to give the students confidence that they were not second-class citizens of the Community College of Philadelphia but rather that they were being afforded a special opportunity to improve their talents; an opportunity from which many other students undoubtedly also could benefit, an opportunity that resulted from generous expenditures of time and effort on the part of some of the most able members of our faculty and administrative staff, and a program which, because of its very nature, placed in financial burden on the college

In addition to the mechanics and philosophy related to the admission of students, early decisions had to be made regarding course content. It was recognized that these decisions could best be made by members of the Teaching Faculty. Each Division Director selected a course leader or course leaders who through their released time efforts developed the content of the courses to be included in the Developmental Curriculum. These course or group leaders were selected on the basis of their experience and background in both remedial education and their subject area and also on the basis of their interest in the Developmental Curriculum. In both the initial selection of course leaders and in the subsequent selection of other members of the faculty, interns, and teaching aids the dual factors of ability and interest were always of highest priority. Many developmental curriculums have floundered because of the low status connected with teaching something "less than" traditional college courses. Community college faculty are frequently unsure of themselves and self conscious of their position in the academic community. Teaching assignments are customarily dispensed on the basis of academic rank and seniority. This practice results in the more experienced and able members of the faculty electing to teach the advanced and exotic college level courses, the less experienced faculty choosing to teach what is left of the college level courses, and finally the inexperienced faculty (frequently those fresh out of graduate school) are left with the task of teaching--perhaps against their wishes--in the Developmental Curriculum. Those least able are given the most challenging teaching assignment. Throughout the entire planning stage we made every effort to picture the teaching of less able students as a challenge and took great care not to underestimate the

significance of success in this area to the future of the institution or the community college movement.

The experience of other institutions led to an early commitment to block-schedule students in the Developmental Curriculum. The one hundred and sixty students in the Developmental Curriculum are broken down into eight subgroups of twenty. Each of the twenty students in any subgroup has an identical schedule with the same courses. times, rooms, and instructors. Hopefully, this will enable students in a commuter institution to better come to know each other and identify with their common professors and the developmental program. The solidification of these bonds will help hold students in the program. As we have all heard, quite frequently students may learn more from each other than they do from any instructor. Block-scheduled students would be more likely to come to know each other, and, hopefully, they would turn to each other for assistance and tutorial help.

Block-scheduling results in instructors from various disciplines having exposure to the same students. As a result instructors can meet on an inter-disciplinary level to discuss problems and evaluate the progress of the students that they have in common. It also facilitates the scheduling of extra-classroom experiences such as field trips, micro labs, films, course sampling and career shadowing. It is of course essential that the coordinator supply counselors and members of the faculty with lists, not only of the students involved in the particular groups with which they will have contact, but also with lists of the other faculty teaching these same groups. Block-scheduling also facilitates scheduling of meetings between subgroups of students and all the faculty that teach them. During these meetings students can assist the faculty in evaluating the effectiveness of the program and in identifying problem areas or instances which lend themselves to interdisciplinary application.

Implicit in the establishment of the Curriculum is the possibility that students will view themselves as an entity apart from the mainstream of collegiate life. Every effort has been made to assure the students that they are not second-class citizens of less respectable than students in a traditional curriculum. There is no question that by placing them into a special program we are, in effect, placing them apart from the student body. However, we have striven to indicate that "different" need not mean "less than." Having taken this step we have not been hesitant to move further in the direction of distinguishing these students when there are advantages to be gained. For instance, pre-admissions counseling, block-scheduling, large-group small-group instruction, all further distinguish them from students enrolled in traditional college offerings. This rationale led us to feel that there would be advantages to placing these students physically apart from the rest of the student body. The Developmental Curriculum classrooms, the offices of faculty associated with the Developmental Curriculum and the offices of the counselors who serve the developmental students have been locationally concentrated. At an early date, planning had to be initiated to revamp the bulk of the fifth floor of our educational plant so that we could focus the energies and resources of the institution on the needs of this particular group. Interspersed with classrooms and lounges used exclusively by students in the Developmental Curriculum are faculty offices, walk-in tutoring areas, and the offices of counselors. It is hoped that this arrangement will encourage student-faculty contacts, and make faculty advisement, tutoring assistance and counseling services readily accessible and convenient for the students.

Throughout the summer of 1969, the various lead teachers and their teams worked rather independently by discipline. Parties involved however, were informed as to the names of all faculty working on course development and encouraged to

work together wherever possible to interrelate course materials. The coordinator for the Developmental Curriculum provided central direction and communication services as needed. During faculty orientation the week prior to the opening of classes, many working meetings-by discipline-of faculty associated with the Developmental Curriculum were scheduled to review plans for the coming semester. Also scheduled were meetings of the total faculty participating in the Developmental Curriculum in which the various disciplines presented in order their plans for the coming semester emphasizing developments subsequent to those related in meetings of the preceding spring and those aspects of their program that are interdisciplinary in nature. The counseling center also reviewed the perimeters of the total incoming group, research possibilities, feedback from summer interviews, counseling functions and servic s available, parent orientation plans, etc. Finally, the last day of faculty orientation coincided with freshman orientation and students from the various groups (1 through 8) met at separate times and places with the faculty that would be teaching their particular group.

Course Descriptions

All of the courses in the Developmental Curriculum could be characterized as student-orientated, concept-orientated and related to the common experience and backgfound of the student. In addition to these general comments I would like to relate some of the specifics of the various courses because I feel the relation of such specifics is the only way that the reader will understand the true nature of the program.

Mathematics

The developmental Mathematics course is success oriented. Evaluation is based on how far a student gets rather than how he gets there. Provision is made for pre-testing so that a student may skip an unnecessary unit and for retesting so that a student can satisfy the requirement of a unit without repeating all of it, and for repeating units when necessary. The minimal goal for all students is a set of useful skill and understandings and the ability to apply these to real problems. Each mathematics unit consists of three and one-half weeks of instruction and a turn around period for student evaluation, retesting, and determination of the students next unit. Each unit contains six master lectures (two each week); a follow-up problem solving session for each master lecture; and one-half hour each week of special instruction, tutoring, programmed material or film strips. Although the master lectures may be addressed to large numbers of students the problem solving sessions are limited to twenty.

The standard format of a master lecture is:

1. motivation (what kind of problems are encountered that necessitate the mathematical techniques being discussed)

2. exposition of the mathematical principles and precedures

3. a simple basic application is demonstrated

4. an elementary problem is attempted by students in their seats

5. students' work is discussed and clarified as needed

This pattern may be repeated two, three or more times in a single lecture to provide small step development of a single concept. At the conclusion of the lecture, where possible, and attempt is made to apply all concepts generated to a complex problem. The emphasis is not on correct answers but on the method of solution. Complete lecture notes with worked out answers to all problems discussed in lecture are provided to all students, students are encouraged to try to follow--not copy--the lecture.

English

Three English courses are included in the first semester of the Developmental Curriculum. Both Reading and Writing follow identical scheduling formats. Each meets once weekly in a large group of 40, once weekly in two sub groups of 20, and once weekly by sub group in a 2 hour laboratory session conducted by a Teacher Aid. Speech meets twice weekly for most students but twice as frequently for the sizeable minority with severe speech problems.

The first semester of the Reading course is intended to provide the student with a wide range of skill instruction as well as specific direction in dealing with basic concepts as introduced in his other courses.

Students are both pre and post tested. The results determine whether the student continues for a second semester of developmental reading or passes to college level work.

The second semester developmental reading course develops facility in those reading rasks that confront the college freshmen. It is designed to provide help with the typical textbook material, essays and reports expected of freshmen. Practice in analyzing typical materials and in recognizing the demands such materials make on the reader, from perceiving organization to recognizing irony.

The Speech Course has practical goals such as fluency, self confidence, organiz tional skill, and use of acceptable pronounciation, grammatical form and structure in everyday speaking situations.

Speech II is given to students with grave problems in articulation of standard phonological features and in production of acceptable grammatical forms and structures. Approximately 45 of the 160 students in the curriculum and are supplemented by listening and recording in a tape laboratory.

A two semester sequence is basic writing is the third English component. The first semester works with the basic forms of standard English, noun-verb forms, sentence construction and paragraph organization. The second semester is a practical writing course. In addition to extension of the topics studied in semester one, there is practice with such practical writing tasks as definitions and summary.

Developmental Science

Development Science consists of a seven week unit of Biology and a seven week unit of Chemistry.

Three lectures and two hours of laboratory are held weekly for each subgroup of twenty students. These courses have four objectives:

1. subject matter
2. how to read and study from a science text
3. how scientific investigations are conducted
4. arousal of student interest in natural science through direct experience.

Personal Psychology

This course helps the student to understand himself and to function effectively as a member of society and in his relationships with others. Understanding is pursued by measuring individual differences, particularly those related to achievement, aptitude and interests. Implications of these differences for education, employment, and daily living are explored. This course meets thrice weekly.

A second semester sociology course that investigates social differences and similarities in terms of their effect on social problems and policy is in an advanced stage of development.

Counseling

In addition to the before mentioned pre-admissions interview and active cooperation with the academic psychologists in Personal Psychology, the counselors meet weekly with the student body for Micro Labs or other directed experiences. They plan three individual interviews with each student in the first semester.

Micro-labs combine the techniques of college "human potential seminars" with the "sensitivity training" process both of which are emerging on many campuses as new dynamics in understanding and better meeting todays student needs. Counseling will structure human potential encounters to expose the students to the attitude that something is right with them. They should increase self-motivation, self-worth and self-confidence.

Second semester students will be permitted to elect one college credit course in their area of interest. They will also be encouraged to sample other introductory courses in which they are interested. Such sampling involves attending all meetings of a particular course for one week. Supported by counseling, the affect of this "live" broadening of perspective is to assist students in crystallizing their academic and vocational interests and thereby minimize later curriculum changes.

The counseling center serves as a central repository for all test results and is charged with collecting statistics to be used in institutional evaluation of the Developmental Curriculum.

Summary

The first step in establishing a Developmental Curriculum is the realization of need. This need frequently will have its origins in the community college's commitment to an open-door admissions policy.

An inital action directed at satisfying this need is presidential appointment of an ad hoc committee with meaningful direct participation by the Dean of Instruction and the Dean of Students. Other committee members are those with strongest experience in remedial education and should include representatives of English, Mathematics, Psycholory and Counseling.

Building on the experience of other programs and incorporating promising features suggested by the faculty and administration, the committee recommends general curriculum structure, goals and a target date for implementation to the President.

The President then fixes administrative responsibility for continued curriculum development and implementation. If this responsibility is divided among a number of administrators as would be the case in a divisional organization, it is essential that a coordinator be appointed to give unity of direction and prevent unnecessary duplication of effort. The function of the ad hoc committee is of necessity altered from that of and active developer of broad recommendations to one of a reactor to the proposals presented by those administrators charged with program implementation.

Detailed course development is delegated to teaching faculty of the disciplines actively participating in the program. Early and judicious identification of lead teachers in each discipline provides focal points for organizing course development efforts. Preferably receiving a reduced load in recognition of the magnitude of the effort involved, these lead teachers are accountable for working within the guidelines established by the ad hoc committee and following the policies endorsed by their division director.

The coordinator works directly with the lead teachers on matters of interdisciplinary concern, seeks compromise from the division directors where conflicts develop, and expedites dealings with other units of the college such as purchasing, physical plant, registrar, admissions and library.

Once the Developmental Curriculum is in operation those teaching in the program (teachers, counselors, teach aids, interns) and the division directors meet as needed to discuss problems and progress. Students also may be included in these meetings. This group replaces the original ad hoc committee and the coordinator gradually becomes redundant and leaves what is now a vital entity to normal functioning within the divisional structure.

THE DEVELOPMENT OF A GOAL DIRECTED INDIVIDUALIZED SEQUENCE OF LEARNING EXPERIENCES IN MATHEMATICS FOR ASSOCIATE DEGREE BUSINESS STUDENTS.

By Ronald J. Harshbarger
Beaver Campus
Pennsylvania State University

On April 1, 1968, a study of the attrition in the Associate Degree Programs at the Beaver Campus of the Pennsylvania State University was released.[1] The report stated that in the first two years of operation of the Beaver Campus 56% of the Associate Degree students had withdrawn or were dropped by the University, with an attrition rate of 72% for the Associate Degree students in Business. (Since the report was issued, the attrition rate for Business students has improved to 56% but this rate is still much higher than the attrition rate for the baccalaureate degree students at the Campus.)

Included in the report were the following recommendations:

1. There is a natural psychological barrier that seems to develop between the two and four year (students) which is a problem that merits some analysis and consideration.

2. The associate students, by nature, are more reluctant to request help from their teachers or advisors when they get into difficulty in a subject. Some means of improving this condition should be considered.

3. Attrition is largely a motivational problem, and a feeling of enthusiasm and pride are needed along with understanding and encouragement from teachers and counselors.

4. Methods to minimize student deficiencies should be considered s such as:

   a. Summer preparation to bring them to a proper level.
   b. Tutorial programs to lift student performance.
   c. Flexibility in the academic programs to allow for differences in student abilities.

5. Other problems which contribute in part to attrition that should be studied:

   a. Highly motivated students without educational background.
   b. Students with creative ability, but not academic ability.
   c. Problems of social adaption and lack of purpose.
   d. Lack of interest and using school as a means of evading military service.

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[1] "A Study of Attrition in the Associate Degree Programs: Business,Drafting and Design Technology, Electrical and Electronics Technology." The Beaver Campus, The Pennsylvania State University. April 1, 1968.

The report also noted that "it is nearly impossible, with the course outlines of instruction to be covered to spend much class time in making up dificiencies which some students have in mathematics, physics, English, etc., especially without a change in their study habits."[2]

This report pointed out some of the special problems of educating students whose abilities, interests, and/or motivations jepordize their chances for success in a traditional university program. The report concluded that many students (and not all of them Associate Degree students) come to the university with a low impression of their ability to succeed, and that the university often does nothing to improve the students' perception of their ability. The problem is complicated because many universities have done nothing to provide for the individual differences among the students.

The universities have attempted to extend their physical facilities and faculties to provide for the ever increasing number of students.[3] But in this everchanging society, where knowledge is increasing at a phenomenal rate,[4] the method of educating college students has remained basically unchanged for centuries. As far as innoviations to provide better education for its students, the university lags far behing the elementary and secondary schools.

What problems have arisen as the result of retaining the traditional lectures and labs while greatly increasing the number of students being taught? E. A. Walker[5] suggests several features of present-day education which should be questioned:

1. Standardization, which leads to impersonality. "The student registers for prescribed courses, attends his classes at specified times, takes scheduled examinations, and adds a few more credits to the total he needs for graduation."

2. Lack of provision for individual differences. "...we have continued to try to force our students into a pattern designed in many respects for mythical average student."

3. The credit system. "...we slave to change our courses, stretch out the material, contract it, add irrelevant material, or leave out important material in order to fit a calendar which demands a three-credit, four-credit, or a two-credit course."

4. The lecture method of teaching. "Why should the entire class be held up because one student is not bright enough or attentive enough to get the point?"

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[2]Ibid

[3]In 1939, less than two million students were enrolled in universities in the United States. Today nearly seven million are enrolled.

[4]More new knowledge has been discovered in the last twenth-five years than in all previous time. It is predicted that the present body of knowledge will double within the next ten years.

[5] E. A. Walker, "The University of the Future," Faculty Bulletin, The Pennsylvania State University, May 10, 1968.

5. Schedules. "...this scheduling of classes and pacing the rate at which the material is presented is designed for the average or somewhat better than average student. But students do not progress at the same rate."

In addition to improving some of these undesirable features, we have a responsibility to improve undergraduate education. We must find methods to provide for the differences in the educational background of students. If a student has had a little mathematics, is he to suffer for this, or can he be given an opportunity to make up this deficiency? If a student cannot maintain the pace set by an instructor or by his fellow students, is he doomed to failure? It may be difficult to provide for the individuality of the students if the university retains its present rigid structure.

Although a student with high ability and/or motivation may succeed in such an environment (millions do) it is a hostile environment for a student with a low estimation of his ability. Such a student needs not only to develop confidence in his ability, but also needs to see that his studies are worthwhile. That is, he must see how what he is learning has relevance to his future, and he should be aware of how a subject will benefit him.

How can the university provide a solution which is in the best interest of the students and provides for differences in their needs, abilities and interests? A group of faculty and students in Curriculum and Supervision at the University of Pittsburgh[6] has proposed that the University develop a curriculum based on demonstration of competencies rather than accumulation of credits. The group called for new teaching methods in undergraduate education, including the development of learning labs to provide for individualized instruction and regular seminars to provide interaction among students.

An experimental curriculm is being developed, originally under the direction of Robert M. Gagne,[7] for the Quincy (Mass.) Vocational-Technical School. This curriculum applies newly developed educational technology to the design, conduct, and evaluation of vocational education. Dr. Gane reports that "included in this new technology are methods of defining educational objectives, deriving topical content for courses, preparation of students in prerequisite knowledges and attitudes, individualizing instruction, measuring student achievement, and establishing a system for evaluating program results in terms of outcomes following graduation."[8] Many of these methods could also be applied in the development of a university curriculum which would eliminate some of the undersirable features of contempory institutions of higher learning.

The writher has attempted to develop an individualized sequence of learning experiences (a curriculum) based on the attainment of competencies which will provide:

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[6]The group work under the direction of Dr. G. Bradley Seager, Jr., developing the competencies required for Trainers of Teachers of Teachers in the University.

[7]Dr. Gagne was originally the Principal Investigator (on behalf of American Institutes for Research) for the project, titled "Development and Evaluation of an Experimental Curriculum for the New Quincy (Mass.) Vocational-Technical School."

[8]Sixth Quarterly Technical Report, Development and Evaluation of an Experimental Curriculum for the New Quincy (Mass.) Vocational-Technical School, U. S. Department of Health, Education, and Welfare, September, 1966.

1. realistic goals or skill which the student should attain to be considered competent in selected areas of mathematics;

2. demonstration of the relevence of the skill the student is striving to master to his future goals;

3. a statement to the student of the behavioral objectives for each learning experience, so that he may know what behavior is expected of him;

4. a hierachy of learning experiences, developed for the student so his progress toward mathematical skills will have direction and meaning, but permitting freedom for the student to help program his learning;

5. individualization of instruction;

6. opportunity for the student to participate in the development of his learning experiences, making use of several media;

7. frequent feedback to the student concerning his progress toward his goals.

This curriculum is intended to demonstrate that it is physically feasible, and to the students' advantage, to learn undergraudate mathematics through an individualized program. Because of the importance of mathematics to virtually all aspects of education and to many vocational fields, every student must be given the opportunity to learn mathematics in a manner which is best suited to him.

The results of this study will have direct inplications for The Pennsylvania State University's developing program for culturally deprived students.[9] New educational experiences must be developed to provide for the special problems of the culturally deprived. We cannot expect these students to fit neatly into the programs designed for the "average" student. Unless some initiative is taken to make the learning experiences meaingful for these students, the program is likely to fail.

It is hoped that this experiment in mathematics will be the beginning of the development of programs in all disciplines which will follow the lines recommended by the group at the University of Pittsburgh. Although the study is limited in scope, it will demonstrate the possibilities of a student-centered curriculum in higher education.

The first step in the development of this curriculum was the collection, through questionnaires and interviews, of information which will determine what basic mathematics skills are necessary for mastery of subsequent learning experiences in the Business Program and for satisfactory performance on the job after graduation. To determine what mathematical competencies are desirable for the Business Program, a preliminary questionnaire was developed, using items derived from previous topics taught in the Business Program, from a survey of Business Mathematics and College Mathematics textbooks, and from personal teaching experience.

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[9] Action was initiated on the program as a consequence of a communication from Eric A. Walker, President of The Pennsylvania State University to the Deans of The Colleges and Directors of Commonwealth Campuses, stating that the program should be initiated by the Summer Term of 1969.

The questionnaire was sent to 38 companies which have employed or have expressed a desire to employ graduates of the Business Program. It was also sent to the eleven Commonwealth Campuses of the Pennsylvania State University which offer the Business Program. Twenty-three responses were received from the companies, and questionnaires were returned from ten of the eleven campuses.

From this questionnaire the major areas of desired competency were determined to be arithmetic, algebra, and business mathematics. A new questionnaire was developed to determine more precisely what competencies are desirable in algebra and business mathematics. It was sent to the companies and instructors mentioned above, and to some graduates of the Business Program.

The results of the questionnaires were used in two ways:

a. The topics that the respondents felt were most desirable were used to determine what competencies are necessary in mathematics for students in the Business Program.

b. When a unit is introduced to a student the results of the questionnaires concerning topics in the unit are discussed. Thus the student will see how the skills in the unit are relevant to his future.

The next step in the development of a new curriculum was the development of an individualized sequence of learning experiences which is directed toward the goals of the students, pointing to successful completion of the Business Program and competence on the job following graduation. The Business Program is a program preparing students for a narrow range of vocations after graduaction. For this reason, the student is likely to respond well to the learning experiences which are relevant to his vocational interests. The learning experiences will be individualized to provide for the wide variance in mathematical background of students entering the Business Program, to provide for differences in learning rate, and to permit the student to choose a method of learning suited to him.

The unit of learning will consist of the following:[10]

A. The behavioral objectives for the unit, which state the terminal behavior expected of the student.

B. An overview of the unit, which introduces the learning activity, and shows the relevance of the unit to the goals of the student. The relevance will be written or demonstrated by guest lectures from professors of related courses in the Program or representatives of business.

C. The learning tasks for the unit, which direct the student's activity and guides the student's thinking, providing for process skills. A variety of methods will be available to

[10] The structure of the unit is adapted from that developed by American Institutes for Research for the Quincy Vocational-Technical School

the student to provide the learning tasks. He will be free to take advantage of lecture-demonstrations, small-group work, films, individualized programs, and books.

D. The summary, which provides a brief review of the unit and presents applications of the acquired skills.

E. The mastery test, which gives the student an opportunity to demonstrate his terminal performance. If he scores above the minimum mastery level, he goes on to the next unit; if not, he studies those parts of the unit which caused difficulty, and takes another form of the mastery test again when he feels he is ready.

The sequence of learning experiences are divided into thirteen learning units, including topics from artithmetic, algebra, business mathematics, probability, and statistics. The objectives fro the units were determined in large part by the results of the survey mentioned above.

Rather than define the mathematics requirements for the Associate Degree in Business in terms of credits or in terms of number of weeks of study from a certain book, the requirements are defined in terms of the competencies to be acquired. The student is free to gain these competencies in any manner he chose which unit he will study next, provided he has mastered the prerequisite units. Thus he has a part in the programming of his learning experiences.

The student will demonstrate his competency on each unit by taking a mastery test, which tests his attainment of the behavioral objectives of the unit. If he attains the minimum level of mastery, he goes to the next learning unit. If not, he learns the skills he needs and takes an equivalent mastery test on the unit. He is given as many opportunities as he needs to demonstrate his competency.

The mastery tests are constructed by use of a computer program designed especially for this purpose. A data bank of questions for each unit is supplied to the computer. The data is provided in categories, with each unit objective corresponding to at least one category of questions. The computer will pick one question from each category,print the question, leave space for the students' answer, and print the answer to the question. The answers are detached before the student takes the test. After he has completed the test, he is given the answer key to the test, providing immediate feedback concerning his success. This computer program makes it possible to construct a large number of equivalent tests of the objectives of the unit. For example, if four questions are placed in each of twelve categories, it is possible to construct 4^{12} non-identical twelve-question tests. Thus from 48 questions it is possible to construct over 16 million twelve question tests which differ by at least one question.

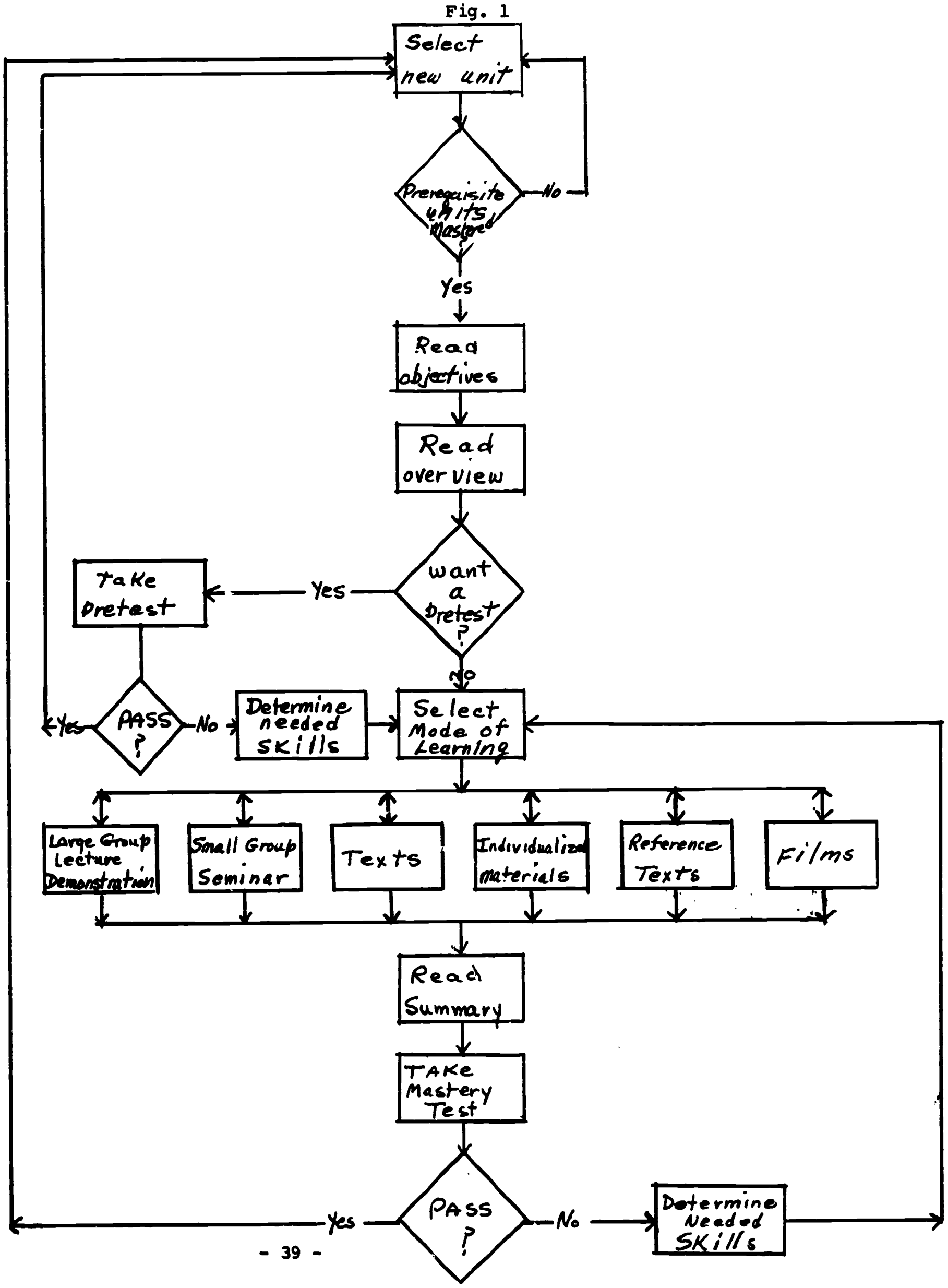
This curriculum will be implemented during the Fall Term, 1969 at the Beaver Campus of The Pennsylvania State University. Innovative scheduling will make it possible to have large and/or small group discussions on as many as twelve different units per week. A livrary of programed materials, reference books, and films at the disposal of the students will increase the opportunities for the students to direct their own learning. The curriculum will be evaluated during this term to determine if it has attained the curricular goals mentioned above. It is hoped that the desirable features of this curriculum will be extended to other disciplines in the Associate Degree Programs and that this will result in a reduction of the attrition

rates for students in these Programs.

It must be pointed out that programs of an experimental nature, such as this one, can be undertaken only where the college administration is forward-thinking and encourages experimentation. I wish to express my appreciation to the administration of the Beaver Campus of The Pennsylvania State University for their cooperation and assistance with this Program.

The flow chart (Figure 1) shows the possible paths the student may follow in working through the unit.

Fig. 1



THE LEARNING CENTER: ITS ROLE AND FUTURE IMPLICATIONS FOR THE JUNIOR COLLEGE

By John F. Touchey
Community College of Delware County

The Learning Center is a fundamental supporting element fro the academic program. It is interdisciplinary in its orientation for it provides counseling in the fundamentals that are essential to every academic discipline. It uses and directs the use of all supporting elements to the academic program, particularly the library and the instructional media center. It provides individualized academic counseling in a variety of academic skills, including imporving study skills. It attempts to develop a degree of academic and social self-confidence in the student, by making him less dependent on study habits and skill which are not amenable to the needs of college. The Learning Center serves the faculty in a number of fundamental ways:

1. it provides them with more time to devote to more creative activities;

2. it tends to assure that students are better prepared to assume a degree of independent responsibility for studying;

3. it provides them with ready access to specialists for referral and guidance.

The Learning Center of the Community College of Delaware County

The development of a Learning Center will vary with georgraphy and experience, but perhaps the experience of the Community College of Delaware County will serve as a point of departure for comparison and discussion. (See Figure 1)

The Community College of Delaware County opened in the Fall of 1967 with 310 students. It was not until late in the Fall semester that it became apparent that many students admitted to the first class did not possess the necessary study habits or reading ability for success in college. This recognized deficiency generated a need for a developmental reading program.

An anecdotal record of the development of the Reading and Study Laboratory (named The Learning Center in June, 1969) has two important aspects--quantitative and qualitative. The quantive growth is presented in Figure 1 to indicate the staff and fiscal commitment made by the College. The qualitative aspects of our experience are far more significant because they focus attention upon the product of our experience, which at this stage is difficult to measure, being more subjective than objective. Yet even this mode of measure is a valuable research technique, and one I shall take the liverty of using in this preliminary report. Future reports will reflect more quantitative measures based upon a refinement of date about students using the services of The Learning Center.

Quantitative Development

Figure 1 illustrates the quantitative growth of The Learning Center indicating an enrollment growth from thirty-eight students to eight hundred and seventy-five, which does not include an undetermined amount of referrals. It also indicates a staffing commitment by the College of from a part-time reading specialist to a Coordinator of The Learing Center and six staff members plus adjunct professionals from the academic departments. The College has made a further commitment to The Learning Center by giving it area status within the Department of Instructional Resources.

The activities of The Learning Center have expanded from a developmental reading program to include Developmental Mathematics, English and an open laboratory apporach to Foreign Language, without losing an individualized approach to remedial instruction.

Qualitative

Thirty-eight (38) students were registered for the reading development program in the spring semester, 1968. There was no available time to schedule a reading placement test for all students. Therefore, the program's enrollment was on a voluntary basis. A part-time reading specialist was hired to give class instruction in the areas of reading comprehension and study skills.

Certain problems prevented the establishment of an ideal reading program; these included class scheduling, inappropriate materials and a lack of educational research concerning the reading needs and abilities of junior college students. Fortunately, the reading program did have the support of the faculty, administration and, more importantly, students who realized their deficiencies and need for a more comprehensive reading and study skills ability. Due to the student's motivation, some success was achieved.

The expenditure for this semester was limited to the salary for the part-time reading specialist.

The Reading and Study Laboratory was established in the College's temporary quarters in the fall semester of 1968. A laboratory area, testing room, office space and classroom were made available to the now full time reading specialist.

All incoming freshmen were required to take The Nelson-Denny Reading Test. The results were sobering. Two students out of 1050 scored at the secondary level. Through effective counseling and student motivation, voluntary enrollment in the reading program jumped from a previous thirty-eight students to 472 students. Reading classes and laboratory sessions were scheduled during free periods between scheduled classes. The program offered three developmental credits. Ability grouping occurred within these scheduled classes. Materials were acquired from the secondary reading programs in Delaware County schools. A work study student was assigned to the program to assist with record keeping and distribution of materials.

Some success was apparent by the end of the semester, due to student motivation and cooperation, and an expanding amount of available materials. Students willingly worked with one another in the areas of spelling and vocabulary development. The specialist instructed students in the necessary study skills required for the various academic areas. Reading comprehension, vocabulary and spelling exercises were developed using the required academic area textbooks.

Special meetings, aside from their regularly scheduled reading classes, instructed the students in the methods for writing a term paper. The specialist, schooled in group dynamics, began voluntary sessions with discussions usually centered around the problems associated with college freshmen.

The need for additional assistance in the Reading and Study Laboratory recognized during the previous semester was met in the spring semester, 1969. Some of our students needed more direction than could be given by a work-study student during laboratory sessions. Therefore, a reading technician was hired to assist the reading specialist

during laboratory sessions and to provide clerical assistance for the entire program.

A part time reading specialist was placed under contract to instruct students during the evening class hours. This was not a desirable contract on the part of either the students or the instructor. A reading program should provide as much academic counseling to students as they may need. Many students develop, for themselves, an unprecedented educational rapport with their reading instructors. Many students come to depend upon their reading instructor for assistance in all academic areas. Neither the ten month nor the part time contract allows enough time for either the student to seek or the instructor to give the assistance required. It was felt at the time that at least two twelve month contracts were needed for an effective program in reading instruction and study skills assistance

New instructional resources appeared on the market. During this semester, many students came to the reading laboratory who were not registered for reading classes. They expressed their need for assistance in the requirements of the various academic areas. These requirements ranged from the methods used in effective textbook reading to the preparation of a term paper. The reading program, therefore, took on another dimension--voluntary student referral.

Developmental English and mathematics are two courses offered to students, who lack the necessary preparation for either occupational or college parallel programs. Through previous experience and faculty initiative, these two programs investigated the possible utilization of the reading laboratory for individual instruction and programmed assistance for their respective areas. The reading laboratory was willing to cooperate in this development.

The fall semester of 1969 witnessed the opening of The Learning Center of the Community College of Delaware County. The various placement tests (see Figure 1, Fall, 1969) dictated the assignment of 775 students to the Center for developmental individual instruction.

The reading program, through an increased budget, contracted two twelve month and two part time reading specialists. Another laboratory technician was employed to assist in the expanding amount of clerical work and distribution of materials. These technicians need not be professional people by granted degree but rather be mature, responsible adults interested in the philosophy of the program and student progress. Experience has shown that working college students do not possess the depth of understanding or concern for their fellow students that this position requires. However, work-study students may be helpfully employed to assist with the clerical operations of the program.

The open laboratory concept for foreign language study was, up to this time, impossible to accommodate in the College's temporary location. However, as part of a much larger program, it was rather easy to incorporate this concept into The Learning Center

The Learning Center now occupies renovated facilities. Areas were partitioned for the various functions of the Center, carpeting was laid to absorb some of the noise caused by a constant motion of students entering and leaving, an enclosed area was built to house a typing lab open for any student for any typing need, and new furniture, instruments and materials were added.

Professional assistance comes from the Humanities' and Mathematics' departments. Instructors from both areas meet their students three times a week, once in a class

session and twice in the Learning Center. The Center provides them with some clerical assistance.

As of this writing it is too early for empirical results, but the program seems to be working well. The Center accommodates 875 students per week, the teachers are feeling the benefits of individualized instruction for their students and the students are responding well to this new method of learning. They appear to be more at ease in the learning situation because it is easier for them to approach their teachers with questions.

Two years from now the College will move into its permanent facility. This is a worthwhile testing period for the Learning Center. Needs and priorities are being established. Satellite learning centers for each academic area are being designed and will be incorporated in our temporary facilities. Future reports will include the results of our present program as well as the addition of the remaining academic areas to the Learning Center.

Figure 1. THE LEARNING CENTER--QUANTITATIVE GROWTH STUDY

	Spring 1968	Fall 1968	Spring 1969	Fall 1969
Testing Program	No test administered	Nelson-Denny Reading Test administered to all incoming Freshmen	Nelson-Denny Reading Test	Reading Placement Test Developmental English Placement Test Developmental Mathematics Placement Test A.C.T. College Boards
Enrollment	Voluntary enrollment 38 students	Voluntary enrollment 472 students.	Voluntary enrollment 368 students Voluntary referral - unlimited	500 Reading Students (Voluntary) 175 English Students 100 Math Students 100 Foreign Language Students--voluntary referral
Personnel	Part-Time Reading Specialist	Full-Time Reading Specialist Work-Study student	Reading Specialist Laboratory Technician Work-Study student	2 Reading specialists 2 Laboratory Technicians 2 Part-Time Reading Teachers Professional support from involved academic areas.
Scheduling	Two Class Meetings per week	Same	Same	Reading - Two Classes, Three Lab. English - One Class, Two Lab. Math - Two Classes, One Lab. Foreign Language - Open Lab.
Activities	Reading Comprehension Vocabulary Spelling Basic Grammar Term Paper Study Skills	Reading Comprehension Vocabulary Spelling Basic Grammar Term Paper Study Skills Group Dynamics	Reading Program Developmental Mathematics Developmental English Foreign Language Open Lab.	Reading Program Developmental Mathematics Developmental English Foreign Language Open Lab.
Cost	Part-Time Professional Contract	$11,000.	$4,000. additional budget	$30,00 budget and personnel support from academic areas involved.

A RESEARCH STUDY IN ACCOUNTING

By George O. Ritchey
Roger H. Lager
Harrisburg Area Community College

In the fall of 1968 a study was conducted to determine the possible relationship between success in first semester college accounting and previous instruction in high school bookkeeping. The study was based on the nullhypothesis, "There is no significant difference between the achievement in Accounting 101 of students who have had no high school bookkeeping and those who have had at least one year of high school bookkeeping." An alternate hypothesis was developed stating "Non-bookkeeping students would not achieve grades in Accounting 101 as high as the grades achieved by a group of students with previous high school bookkeeping instruction."

The Problem

The purposes of the study were (1) to determine if any relationship exists between grades in first semester elementary accounting and previous instruction in high school bookkeeping; (2) to compare achievement of students with previous bookkeeping instruction with achievement of students without previous bookkeeping instruction and thereby determine which group performs more successfully.

The authors have been told unofficially by several educators that students with previous high school bookkeeping are usually unable to be successful in college accounting. The inference has been made that previous high school instruction is a disadvantage to the student especially after mid-semester of the first semester in college. The authors were concerned about the validity of these opinions and therefore decided that a study of this nature would be valuable.

The authors were also concerned about the advisability of grouping students in college classes regardless of their previous background in bookkeeping. Several instructors indicated that the students with previous bookkeeping experiences were often a disrupting factor in the class presentation. With these concerns in mind, the authors conducted the study in order to gain more insight to the problem of proper scheduling of students in accounting.

Included in this study were fifty-one students of the 327 students registered for Accounting 101 for the fall semester 1968, at Harrisburg Area Community College. These students were not necessarily a representative sample of all students registered for the Accounting 101 course.

In order to establish comparison groups of non-bookkeeping students and bookkeeping students, it was necessary to eliminate some students with extremely high or extremely low scores which if included would have made the groups uncomparable.

It is also very likely that the students in this study represent a lower ability student, according to test scores, than the average students normally in an Accounting 101 class. It did not seem to be a coincidence to the authors when arriving at comparison groups that the students with previous bookkeeping instruction normally had low test scores.

These two groups were matched as closely as possible on the basis of test scores and class rank. It is conceivable that the tests were not suited for the

purpose of comparing academic and non-academic students. (The bookkeeping students were not normally in an academic program in high school.) Therefore the bookkeeping group may actually be more capable than their test scores indicate.

Procedure

Two groups of students were selected according to the procedure stated above. Since the number of cases in each group was less than 30, the authors used Student's t Distribution, rather than a normal distribution, in analyzing the test of hypothesis.

This study was conducted at a .005 level of significance. The standard table of t scores found in Schaum's Outline Series Theory and Problems of Statistics was used along with the following decision criteria.[1] The nullhypothesis can be rejected if the value of t is calculated from the data by using the following formulae:

$$t = \frac{\bar{X}_1 - \bar{X}_2}{\sigma\sqrt{\frac{1}{\bar{M}_1}\ \frac{1}{\bar{M}_2}}}$$

where sigma is defined as

$$\sigma = \sqrt{\frac{N_1 S_1^2 \qquad N_2 S_2^2}{N_1 + N_2 - 2}}$$

is greater than or equal to -2.68. If the value of t is less than -2.68 the null-hypothesis may be accepted.

Because of an extensive increase in enrollment at the college, it was not possible to keep these two sections composed of all and only students with bookkeeping as compared with all and only students without bookkeeping.

Using these two sections as a source of students, two comparison groups were established. They had the same instructor who used the same materials and methods of instruction. They were statistically compared according to high school class rank and ACT scores. This average of comparisons was established as follows:

	Class Rank*	Eng.	Math.	S.S. Reading	N.S. Reading	Composite	No. in Groups
Bookkeeping Students	52.8	17.1	16.5	19.5	19.3	18.2	26
Non-Bookkeeping Students	49.92	17.2	19.7	18.7	21.0	19.2	25

Using standard scores as assigned to class rank according to the American College Testing Program, the authors found that bookkeeping students had an average class rank of 52.8 compared to the average of 49.9 for the non-bookkeeping students.

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[1] M. R. Spiegel, Schaum's Outline Series Theory and Problems of Statistics (New York: Schaum Publishing Co. 1961), p.344.

* based on 5 fifths with 1 representing the top fifth

These averages proved to be significantly different, at a t-score of -3.92445. This indicated that the bookkeeping students had a significantly higher high school class rank than the non-bookkeeping student.*

The ACT math scores suggest that the non-bookkeeping students have higher math ability than the bookkeeping students. The non-bookkeeping students had a mean ACT math score of 19.7 as compared to a mean of 16.5 for the bookkeeping students. However, the bookkeeping students would not normally have had instruction in academic math in high school; and, therefore, their achievement on the ACT math test may only be an indication of previous achievement and not necessarily an indication of math ability.

When ACT composite scores of the two groups were compared, the t-score of 1.79583 indicated that there was no significant difference between the two groups. Using the ACT as in indication of college ability, the groups proved to be similar.

Before the semester started, the instructor was informed of this research project and the nature of the study. He was never informed about the instructional background of any specific student.

As previously stated, it was necessary to eliminate some students in each of the two sections. The instructor was not told which students in each section were used for this study. No students were informed that a study was being conducted.

Presentation of Results

At the time of mid-year grades a record was made of the accounting grades of each student involved in the study. The following observations were evident at the time:

1. Average Mid-Year Grade**

	Mean GPA	SD
Non-bookkeeping students	1.84	1.143
Bookkeeping students	3.04	.916

2. Breakdown of grades:

	A	B	C	D	F	No.
Non-bookkeeping students	2	5	8	7	3	25
Bookkeeping students	8	13	4	0	1	26

3. Using the decision criteria previously established it was evident at time of mid-year grades the t-score of -5.2157 indicates the nullhypothesis should be rejected. We can state at a .005 level of confidence that there is a significant difference between the grades of students with high school bookkeeping instruction when compared with grades of students without high school bookkeeping.

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* standard scores assigned to class rank as follows:

1st fifth	63rd percentile
2nd fifth	55th percentile
3rd fifth	50th percentile
4th fifth	45th percentile
5th fifth	37th percentile

** (Grades are computed on a four-point scale--A=4)

On this basis we can also accept the alternate hypothesis that non-bookkeeping students did not achieve as high grades in Accounting 101 as achieved by the group of students with previous high school bookkeeping instruction.

At the end of the semester the accounting grades were recorded for each student involved in the study. The following observations were evident at that time:

1. Average Grades:

	Mean GPA	SD
Non-Bookkeeping students	1.72	1.208
Bookkeeping students	2.65	1.164

2. Breakdown of Final Grades:

	A	B	C	D	F	No.
Non-Bookkeeping students	2	5	6	8	4	25
Bookkeeping students	5	12	5	2	2	26

3. Grade Breakdown Compared:

Non-Bookkeeping (Mid-Year)	2	5	8	7	3	25
Non-Bookkeeping (Final)	2	5	6	8	4	
Bookkeeping (Mid-Year)	8	13	4	0	1	26
Bookkeeping (Final)	5	12	5	2	2	

4. Number of students decreasing their grade from mid-year to final:

Non-bookkeeping	7
Bookkeeping	11

5. Number of students improving their grade from mid-year to final:

Non-bookkeeping	5
Bookkeeping	4

6. Using the decision criteria previously established, it was evident at the end of the semester the t-score of -2.753738 indicates the nullhypothesis should be rejected. We can state at a .005 level of cofidence that there is a significant difference between the grades of students with high school bookkeeping instruction when compared with grades of students without high school bookkeeping. On this basis we can also accept the alternate hypothesis that non-bookkeeping students do not achieve as high grades in Accounting 101 as achieved by a group of like students with previous high school bookkeeping instruction.

Observations

1. The scheduling of students in the manner which was done in the fall of 1968, i.e., attempting to place bookkeeping students in separate classes, where possible, and place non-bookkeeping students in separate classes, may create a better teaching-learning situation. Students are more homogeneous in their educational background; and, therefore, the instructor's presentation may be more specifically directed.

2. It is possible that this study not only affected those specific students in the study, but also those other students and instructors in other sections. Several sections were reported to be composed of only non-bookkeeping students thus giving their instructor a common ground on which to start.

3. This study has no implications with respect to the teaching ability of the staff for Accounting 101.

4. This was a group of students matched as closely as possible to evaluate the possible benefit of past bookkeeping instruction. It may actually be the case that all students in this study represent a below average or above average cross section of the population of students enrolled in Accounting 101.

5. It is reasonable to assume that when a student with previous instruction in high school bookkeeping fails to do reasonably well in Accounting 101 the cause for failure is some cause other than the fact that the student had previous instruction.

6. The results of this study should not be used to indicate what subjects students should study in high school. All students are different and the best use of their time and talents must be decided individually.

Recommendations

1. In future scheduling of students for Accounting 101, extensive efforts should be made to schedule all students with high school instruction in bookkeeping in sections restricted to only such students.

2. Additional research should be conducted in the following areas:

   a. What is the relationship of background educational experience, ability, and career objective of bookkeeping students as compared with non-bookkeeping students?

   b. What similarities exist about all students who fail Accounting 101?

   c. Is there any significant difference in accounting success between students enrolled in our different curricula offered in our division?

BUSINESS GAMES--THE MARKETING STUDENT IN ACTION

By E. A. Weisser, Jr.
Robert Morris College

Today's business administration student faces the problem of using his academic expertise in practical business applications. Students spend considerable time preparing themselves for decision-making responsibilities. To some degree, they study the institutional environment in which business operates. They become semifamiliar with the problems faced by industry, and they investigate the methods used by executives in problem solutions.

In courses which apply the case approach, students are also required to assume the roles of businessmen in the context of real-life situations and to make choices between alternative courses of action; i.e., to make decisions.

However, these traditional methodologies for business education seldom provide the student the opportunity to actually live with these decisions, to test their effectiveness in terms of results, to recognize and rectify mistakes, to adjust to changing circumstances in a highly competitive environment. In brief, traditional teaching methods do not provide a wholly dynamic context for the study of management problems, nor their solutions.

To remedy this situation, the educational simulation, or "business game" has emerged in the past decade as a valuable supplement to the more-traditional teaching approach. These games do provide a dynamic environment for decision making, permitting the student to visualize more clearly the meaning and relevance of the knowledge that he has acquired in the classroom. Of course, it is true that while these simulations involve many over-simplifications which prevent them from fully duplicating situations faced by actual managers, still, they do capture much of the essence of real business operations; and they do provide valuable practice in reaching supportable managerial decisions.

At Robert Morris, we have used two types of gaming, both of which are adapted to computer application.

The first of these is called Marsim--a diminution of the words "marketing simulation." This game was developed by Professors Greenlaw and Kniffin of the Pennsylvania State University, who designed their game as a planned learning experience oriented towards three concepts:

1. The primary obligation of managers is to make decisions--for example, setting price, or determining monetary allocations for advertising expenditures.

2. An understanding of fundamental concepts, ideas, and analytical tools are basic to decision making--such aspects as price elasticity, distribution channel "acceleration effect", or break-even analysis.

3. A better comprehension of these concepts can be gained if the student is given the opportunity to actually apply them to a specific marketing situation.

Marksim accomplishes these ends by offering the student a decision problem that possesses many of the same fundamental characteristics as those faced by real-

world marketing managers. Intentionally, the authors have kept the Marksim model and its accompanying text as simple and basic as possible. However, the Marksim student-manager, like his business counterpart, is required to make a series of interdependent decisions in a competitive environment, for which no direct analytical solution to his problem is known.

To correlate the academic realm with actual business conditions,Marksim asks the student tomake a number of basic marketing decisions.

First, he deals with several interrelated variables. Thus, in pricing his product, he must consider its quality,the amount of advertising that he will utilize to promote its sale,and the units available in inventory to satisfy customer requirements.

Secondly, he learns that he must live with his success or failure, because Marksim rewards adept decisions and penalizes errors.

Next, the student makes these decisions under competitive conditions in which consumer demand for any firm's product is influenced,not only by its own strategies, but also by those of other gaving organizations. Therefore, the Marksim manager attempts to predict competitive behavior.

Finally, since Marksim does not present a decision problem in which all key data is furnished the student, he operates, as does business, under conditions of uncertainty--for example, he does not know how consumers will react to variations in price levels.

The second simulation in which we participate is the International Intercollegiate Marketing Competition,co-sponsored by the Marketing Club of Michigan State University and Sylvania Electric Products Company, a subsidiary of General Telephone and Electronics, which developed this game to train its regional and district marketing managers.

This year, 49 colleges and universities are participating in the competition. Each of the individual four-man teams represents a national sales organization which manufactures three distinct products intended for sale to both the consumer and industrial markets.

The Sylvania simulation is much more sophisticated that Marksim. To initiate this game, each team is given a quantified history of company operations for the previous year, plus other financial and marketing data needed to develop future marketing planning. The teams then make a series of decisions, which are fed to the computer at Michigan State where they interact with the already-programmed market. Each tem could make as many as 217 separate decisions in each period; however, as is true in actual business situations, it is unlikely that all of these decisions would b be made at the same time.

Problem areas involve the size, efficiency,development, and compensation of the sales force; pricing all three products in varying markets; credit extensions; inventory control; control of unit cost; expenditures for advertising and sales promotion; and technical services for the industrial market.

The results of each team's decisions are returned to the participants in the form of six operational reports.

Upon receipt of these reports (which arrived airmail, special delivery from the computer center at Michigan State), the teams have approximately two days to analyze and react to current results befor e making further projections. Each set of decisions corresponds to one actual month of business operations--the competition extends an entire simulated year. In practice, the competition begins in October and concludes the following April at which time, all participating teams join at Michigan State, where they and their faculty advisors meet with panels of corporate executives from industry for two days of fascinating dialogue. Additionally, the four top teams present and defend their strategies and tactics before a group of corporate judges, who evaluate these presentations, and then decide the winner.

During the competition, each team member serves a manager of particular area in the national organization; each area has its own peculiar geographic and marketing characteristics. As manager of that area, it is the student's responsibility to keep adequate records, throughout the year, of his decision and their outcome.

As play proceeds, I find that interest tends to increase, rather than diminish. As the student gains experience and begins to get a pracitical understanding of the business environment, his competitive spirit intensifies; he comes alive; he starts to challenge, to really think. He finds that sound organization means careful analysis of results and acceptable decision making, both of which pay off in visible rewards.

At the conclusion of the simulation exercise, the management of each firm is responsible for the preparation of an overall operations review, which describes its strategies, operating experience, and future direction. To assist in this development, each team is expected to interpret the following areas:

I. Objectives of the Firm

The procedure used in the initial analysis of the business taken over
The assumptions made relative to the situation
The specific objectives in establishing marketing-management goals
If the team deviated from these initial objectives, the deviations must be explained and justified

II. Organization Structure

The effectiveness of the organizational plan
Changes made in the organizational structure
The definition of responsibility and authority

III. Marketing Strategy and Planning

The short-and long-term policies initially decided upon within sales areas and markets for:

a. Forecasting, shipping, and inventory control
b. Advertising and technical services
c. Present and future manpower requirements, including hiring, training, salary and bonus, termination, and transfers
d. Product emphasis on the part of the sales force
e. Selling price and discounts
f. Market share

g. Credit and accounts receivable
h. Profit contribution and ROI

A presentation of all graphs, charts or other control devices used.

IV. Decision-Making Effectiveness

What changes the team would make in organization, objectives, or policies if it had the opportunity to repeat the exercise

What group behavioral characteristics were noted under the pressure of decision making

The dynamics of the behavioral problems encountered in the decision-making process

What solutions were evolved to solve such problems.

V. Evaluation of Results and Future Planning

The significiant reasons, for reaching or not reaching objectivies, and for meeting or not meeting plans and forecasts

The proposed marketing strategy for a continued year of operation

What was learned from this exercise about individual and collective marketing responsibilities

Practically, in a true Business Administration sense, what do these students learn from "being where the action is"?

They find that management objectives must be specific, for example, to increase market share by 1% per month--to reduce unit cost.

They discover the real meaning of "coordination" between managers. How? By establishing one sales area as a pilot model, and then either by expanding its proven tactics to the entire organization or discarding the failures, which, since these are limited to only one region, have a relatively minor deleterious effect on overall company operation.

They realize the extremely hazardous effect of stock-outs, which result in heavy marketing penalties, because "no in inventory" means that merchandise is not only unavailable to fill customers' orders, but also that advertising and other selling expense is a complete waste.

They learn quickly that a lack of strategy, functioning strictly as a "me too" company reacting blindly to competitive moves, is fatal. Thus, they find the true meaning of planning.

As an often-fascinated observer at our team's weekly decision meetings, these are some of the rather cogent remarks that I overheard, also indicative of the learning process.

"We're doing well profit-and ROI-wise, but look at our share of market. Isn't it time to allocate more funds to product advertising and consumer promotion?"

"We have two alternatives, as I see it; either to concetrate on profit and ROI or to increase market-share. For the first, we maintain the present levels and advertising budgets; for the second, we cut prices across the board and increase sales expense, including advertising, sales promotion, and salesmen's bonus."

Would one expect comments such as these from junior college undergraduates, or from experienced marketing-management personnel? I believe that the answer, with all its implications for learning is obvious.

Finally, for the business administration student, familiarity with these simulations is a tremendously fascinating facet of education, vibrant, alive and real--as opposed to the deadly monotony of the textbook. But, additionally, may I point out that the application of these marketing-management games has been spreading rapidly throughout the world of business for the past few years as wit-sharpening devices for industry personnel. I am sure that you will agree that the business administration graduate who can list in his resume, active participation in a similar training exercises, will have great appeal to campus recruiters of personnel departments--an appeal that few of them will be able to resist.

However, in conclusion, I believe it advisable to add a word of warning. To do so, I quote from an article in the March, 1969 issue of Collegiate News and Views, written by Dr. J. James Miller, School of Business Administration, Duquesne University. Dr. Miller suggests, and my experience places me in full agreement with him, that it is very easy to become over-enthusiastic about any new technique, particularly one as exciting and interesting to participate in as gaming.

Dr. Miller further indicates that those who proclaim gaming as the only educational tool for the furture may be falling prey to the same error made years ago by adherents of the case method. The techniques of the case approach, psychodrams, bfainstroming, and T-training all have had their day; and all have contributed, and continue to contribute, something to education--but never as much, possibly, as their ardent advocates would have us believe.

Here, we find ourselves confronted with another new approach. The question is--does the cost of gaming justify the benefits gained?--and gaming is costly, both in professorial time and administrative expense.

Obviously, it would be most helpful, in coming to an acceptable solution, if both the teachers and the educational institutions involved in simulation would, as soon as possible compile, analyze, and exchange their experiences. Appraisal could then be presented to test the validity of this device as an acceptable educational tool, from the viewpoint of benefits verus cost.

COMMUNITY INVOLVEMENT IN TEACHER TRAINING

By Ruth E. Frank
Bucks County Community College

Introduction

When Bucks County Community College was established in 1965, it was with the firm policy of providing educational services to its community. Initally, teacher preparation was limited to one course--Introduction to Education. During the third year, this course was well established. The expansion into the field of teacher preparation in Early Childhood Education was then considered.

There were several difficulties to be overcome. The two most important involved compliance with Pennsylvania State requirements for teacher certification and the absence of a physical plant that could serve as a laboratory school.

Resolution of Difficulties

Seven new courses were offered in the Early Childhood Education program, together with seven existing courses. These new courses were: the Nursery School, its History, Organization and Management; Nursery School Observation; Practice Teaching; Children's Literature: Preschool Arts and Crafts; Preschool Science; and Preschool Music. Clearly, it was beyond the ability of a small education staff to offer and teach all these courses. Instead, all but the first three were taught by other divisions of the College. This approach initially required some persuasion and coordination. However, it turned out to be extremely efficient and economical.

The problem of laboratory school facilities was formindable one. There was a great deal of pressure ot establish such a school directly connected with the College, possibly on its own grounds. This pressure tended to be generated by faculty members with preschool children. But with capital expenditures required for other purposes, another approach needed to be found. Further, experiences in other university and college sponsored laboratory schools showed that the children of faculty and administration represented an exclusive middle class group. This made it impossible for the college students to gain knowledge in dealing with children from all social strata. Within easy commuting distance of the College there were Headstart Centers, Montessori Nurseries, traditional Preschool centers, and Day Care Centers. These schools, with their varied methods of teaching,their fine facilities, and excellent educational leadership, were then designated as Practicum Centers for students enrolled at Bucks County Community College. Students are able to arrange for personal interviews in the center of their choice and make suitable arrangements for their Practicum, which involves a fifteen-week period, five days each week from 9:00 am to 12:00 noon. It became imperative to make a rule that no more than two students use the same school during any semester for their Practicum. Also, their observation requirements must be fulfilled at a center other than where the Practicum takes place. It was much easier than expected to place all students in suitable schools.

Virtually all enrollees spend much more time at their assigned schools than required for the course. Many plan to continue after their certification as full-time teachers. The formal part of the Practicum is fulfilled by a weekly seminar using a text and problem solving approach. The instructor periodically visits and observes at the various schools. In evaluating the course, formal classwork, and periodic observation is taken into consideration, as well as a written evaluation by the Directress of the cooperating school.

The Early Childhood Education Council

Nursery school administrators showed a desire to form a permanent group and named it Early Childhood Education Council (ECEC). Any State certified nursery center within the county is eligible for membership in ECEC. The college provides regular coordinating meetings, members may utilize many of the resources of the college such as the library and meeting halls. Members of the college faculty may be requested to act as consultants to the nursery centers. Requests for consultation have been most frequent in the area of education and psychology. The College's closed circuit TV and taping center has been utilized by the group to tape mini-lessons and self evaluation sessions. During the past year the ECEC group has gained status within the County, so that now virtually all major nursery centers are represented. Their enthusiasm and willingness to pitch in has resulted in ECEC's assuming responsibility for the organization of the annual Symposium in Early Childhood Education.

The Annual Symposium

This professional in-service training session has grown in attendance, so that now, there are about two hundred participants. Most of them are teachers actively engaged in education, though some are former teachers, faculty wives, and interested parents. The college students majoring in Early Childhood Education traditionally serve as hostesses, and enjoy the contacts they can make with people actively engaged in their chosen profession. The morning is devoted to prominent speakers, while the afternoon is planned around workshop-discussion groups.

The Formal Curriculum

The curriculum in the Early Childhood Education course is basically a two-year concentration leading to an Associate in Arts degree. This curriculum meets certification requirements for assistant teachers in private Kindergartens, Nursery Schools, and Child Day-Care Centers in Pennsylvania. Courses may be transferred to a four-year institution for a degree in Early Childhood Education.

Conclusion

Of the graduating group, thus far, about half remained as full-time teachers in their practice teaching positions, while the others went on to four-year institutions. The two students who dropped out did so to get married. When last heard from, their training in Early Childhood Education will soon be of great benefit.

The policy of the Bucks County Community College has been to provide educational services to its community. By involving the county's nursery school centers' and its administrators and teachers, in the College's Early Childhood Education program, both the College and the participating nursery centers have greatly benefitted. The nursery schools have found a common meeting ground, a resource center, a place for the continuing education of their leaders and administrators as well as a source of dedicated assistants. The college, with a minimum of capital outlay has been able to offer to its students varried experiences in conviently located centers, where students' skills are developed and where the contributions of dedicated young people are appreciated. Thus, at Bucks County Community College the transition from student to full-time educator can be brought about with a minimum of traumatic impact.

THE EARLY CHILDHOOD EDUCATION PROGRAM AT HARCUM

By Herbert Weintraub
Harcum Junior College

If the twentieth century is known as the "century of the child," the current decade may be called the era of preschool child. The influence of early childhood experiences in the later adjustment of the individual has loon been recognized. Prior to 1960, the focus of concern was the social and emotional development of the child.

The effect of earl' learning experiences on later academic success is a more recent consideration. Current emphasis in our country today is on the mental development of the child and the kinds of learning experiences he needs to realize his intellectual potential.

The Early Childhood Program at Harcum Junior College does not focus on any single dimension of child development. If any emphasis does exist, it centers on the concept of the "whole child." Harcum is concerned that children develop to the maximum of their capacities physically, emotionally, socially, mentally and creatively. Our curriculum is designed to show the inter-relation of one type of learning or growth on the others.

In past years there had been a tendency to break the curriculum down into specific areas. Typical course titles were Preschool Music, Preschool Art, Preschool science. At Harcum as at many colleges it was a common practice for the music course to be taught by a staff member of the Music Department, the art by the Art staff and the science by the Science instructors. More often than not, these teachers were skilled in their specialty, but inexperienced with the instruction of very young children. The skill of the art teacher was unquestioned; but knowledge of the interests, needs, abilities and limitations of pre-school children was often lacking.

Harcum solved the problem in two ways. Pre-school Art and Pre-school Music were combined into a single course entitled Creative Experiences for Pre-school and Primary children. Creative dramatics, creative movement and,of course, additional credits were added to the course. An instructor who had experienced these activities with young children taught the course. Creative experiences could now be more easily integrated rather than segmented. At the same time the scope of the activities was enlarged. We welieve that the range of ability, talent and knowledge of young children is extremely broad. Any program that was built to meet individual needs and interests would have to include some primary grade material.

In a similar manner, the course entitled Pre-school Science was renamed Intellectual Activities for Pre-school and Primary Children. Mathematics, Social Studies and Language joined the science activities in order to broaden the background of the emerging pre-school teacher. We also added Reading Readiness to our children's literature course.

The courses mentioned thus far would be far less effective if they had not been preceded by the basic core of Foundations of Education, Early Childhood Education, General Psychology, Child Psychology and Educational Psychology. The culminating experience of this education program is Student Teaching and Practicum. These are combined so that the student teachers can share experiences and problems, the best ideas and the worst.

At Harcum we are fortunate in possessing a laboratory school. The school serves a four-fould function: observation, demonstration, practice teaching and research. All education classes are scheduled for structrued observation assignments. Students of each course observe for a different objective. Depending on the particular course, our students observe, record and discuss attention span, equipment and materials, curriculum, methods, maturation, readiness levels and make anecdotal records of individual children. Each year Harcum places 110-130 student teachers in nursery schools. Our laboratory school can train only a few of these girls. Most of our Early Childhood majors are sent to one of more than twenty schools for their student teaching experience.

Since many of our students express a desire to work in specialized situations, an attempt is made to place students accordingly. Each year some of these girls are placed in schools for culturally deprived children, day care centers, schools for exceptional children and schools that include religious instruction in their program. The cooperating schools are carefully screened. Schools that do not maintain high quality standards are given fewer or no student teachers the following year. Fortunately we always have much more demand for student teachers than we can ever hope to satisfy. Periodically the directors of the cooperating schools are invited to Harcum for an exchange of ideas. The directors learn what we expect of them and we learn what short-comings we need to correct in our teacher education program.

When many of us studied for the role we now play, we sometimes were taught by "ivory tower" type of professors, instructors who knew the research and literature, but who had been away from children for so long a period of time that their approach was stale. Their ideas looked good on paper, but no longer applied to the new situation in the outside world. We have made an effort to prevent this from happening. Although one of our staff works exclusively with our student teachers, all of our instructors are asked to superivise a token number of student teachers. This ensures that they visit nursery schools regularly and maintain closer ties to the real-life situation in today's schools. In addition to this, each of our education instructors serves as a consultant (in an area of specialty) to our laboratory school. They visit and observe there periodically. Then, meeting as an advisory board, they make suggestions for improvement.

Of all the colleges in the Delaware Valley, Harcum is one of the few that offers a complete curriculum in Early Childhood Education to evening students. Most of the students enrolled in this program are mature women who are working in nursery schools or day care centers but lack the educational requirements for state certification. Some of our students travel as far as sixty miles to attend our evening classes.

In the past year, the Commonwealth of Pennsylvania upgraded the certification standards of pre-school teachers. To gain permanent certification, graducates of programs like Harcum's Early Childhood Program will need to obtain six additional post graduate credits in their field of specialty. In order to help our graduates obtain these requirements and as further service to the community we have added these new courses to the catalog of our Evening Division: Teaching the Culturally Disadvantaged Pre-school Child; The Education and Psychology of Children with Special Abilities and Disabilities; Montessori Methods and Materials for Pre-school Programs; Audio-Visual Instruction, Supervision and Administration of Pre-school Program; Evaluation and Güidance for the Teachers of Young Children.

In all probability, human beings learn about 90% of the things that they do through imitation. It is possible that teachers teach more the way they were taught than the way they were taught to teach. Perhaps the main concern of the Education staff at Harcum is that we practice what we teach. The things we live, or act out, are often the things we remember best. Many people can remember the part that they acted in their first grade class play. Yet they fail to recall any other significant event of that year. When possible, Harcum girls are asked to act out or do the skills and concepts that we hope they will use in future years. In turn they are urged to use creative dramatics in order to teach virtually everything in the pre-school curriculum. If the emphasis in our country today is on the mental development of the young child, we would hypothesize that the next national trend will be the forstering of creativity. Most of our teachers-in-training and the children they will teach in the future will become no more creative than we are in the methods we use when we teach them today, tomorrow and next week.

It used to take about sixty years for a new idea in education to win acceptance and come into common usage. Times are changing. Our values and cherised traditions are no longer so sacred and immovable. Social, religious, cultureal and technological change have become repid and common place. Even education is experiencing more rapid evolution that borders on revolution. Aware of this, the Education Division of Harcum is concerned that we prepare teachers not just for the year 1970, but for the decades that follow it. That implies emphasis on flexibility, respect and critical examination of research, attention to new books and periodical literature, active membership in professional organizations and above all, the willingness to attempt unknown procedures to solve the unknown challenges of the future.

A "MAVERICK" APPROACH TO AN ASSOCIATE DEGREE NURSING PROGRAM

By Jean P. Baldwin
Community College of Delaware County

The associate degree nursing program at the Community College of Delaware County is indeed a "maverick" for we have dared to break away from repetitive tradition and we have attempted to apply what we have learned from general education to nursing education. The program focuses on a basic tenet that an educator should not be bound to tradition for tradition's sake and, that, if we are to find answers to the demands of society and nursing itself, nursing educators are obligated to look at different approaches.

Tradition has dicated that nursing students should have courses in microbiology, chemistry, biology, and physics. Similary, separate courses in psychiatric nursing, pharmacology, and nutrition have been offered and are still required in traditional nursing programs. When nursing colleagues are questioned, it is difficult for them to justify the usefulness of these complete courses in their nursing careers. Certain aspects of thse subjects are vital to be sure, but not as discrete courses. In our curriculum, the pertinent aspects of these subjects have been identified and integrated into the total range of content. As a result, students do not face the time consuming task of correlating material from several subjects to one particular topic of content.

The natural question that will arise is how and where do you find nurse educators who are able to identify these pertinent aspects. It is my firm conviction that nurses should look to their own nursing education programs and nursing careers to realize that they can meet this challenge if they are willing to give up some of the security of tradition and have the courage to educate nursing students differently. Admittedly, it is not an easy task but it is an attainable one. My personal experience has demonstrated that I had the necessary content at my fingertips, but, I never had been stimulated to use it. It is a revelation and a source of tremendous satisfaction to do this. The ability to grow and to obtain satisfaction surpasses ultimately the insecurity of trying.

This integrated approach to nursing education does not evolve with effort. It requires time to think through what you are going to do and to see it materialize. Countless hours are spent reading and determining what is useful, only to discover that you have more material than you need. More hours are spent refining the actual content. Only time will prove you right or wrong.

It is for these reasons that the nursing program at the Community College of Delaware County accepted a limited number of students in the first class for it was recognized that time to evaluate what the facutly and the students are doing must be available. A small class also gives the faculty time to have adequate contact with the students to listen to their ideas. Too large a class does not favor the currivulum, the students, or the faculty.

The students in this program have their initial clinical experience in a large extended care facility for the aged. The emphasis is on behavior, fundamental nursing skills, and a broad patient-centered approach to nursing care rather than the problem of the elderly and diseases. This type of beginning experience has many attributes: it has a slower pace than a general hospital that allows students

time to concentrate on the educational objectives planned for them; it provides time and opportunity for the students to develop and to utilize interviewing techniques; and, it allows the opportunity to provide attention needed so badly by the elderly in most extended care facilities. An additional outcome of the experience, which was noticed during the second semester, was a decided lack of negativism when students were assigned to elderly patients. This was encouraging because age was not emphasized during the first semester.

Perhaps an equally important outcome has been the awareness that the students are more ready to function at a greater capacity in a general hospital following the initial experience in the extended care facility. Also, a greater amount of theory can be taught in less time with the broad patient-centered appraoch. Therefore, the second semester focuses around selected, common medical-surgical conditions found in a general hospital with emphasis on how the medical-surgical condition affects the patient.

In the third semester, the Maternal-Child Health experience will be centered in a local community nursing service. Pre-natal clinics with follow through for labor and delivery in the general hospital setting, well baby clinics with follow through into the general hospital if illness occurs, sick baby clinics, and home vists will be utilized.

The fourth semester will place emphasis on geriatric and rehabilitation nursing. Selected learning experiences will be chosen in a general hospital with a seminar presentation of content by the students using the faculty as a resource.

Unlike many traditional nursing programs, this program does not have a psychiatric affiliation. The principles of psychiatric nursing can be used abundantly in an extended care facility or in a general hospital if nurses will accept the fact that the major objective of nursing education and of nursing practice is caring for and about patients. Experience gives more and more credence to the fact that mind and body cannot be separated. We believe that patients should not be treated independently by different people if we are to utilize fully nursing talent and manpower and if we are to give the most complete care possible. Our students are introduced to psychiatric principles very early in the first semester with continued emphasis throughout the program.

Students spend time intially in the clinical area of the extended care facility simply talking to patients assigned to them by the faculty. Before they meet their patients the students gather as much information as possible about their assigned patients from charts and personnel. This information is reviewed by the faculty to help a student determine what is pertinent. At this point, students have not had any interviewing techinques or psychiatric nursing principles formally presented to them. They are asked to spend time with their patients with the focus on communication. Post-clinical experience conferences are held for students to discuss what communication took place between them and their patients. The faculty and students begin to interpret the student-patient interaction. After about two weeks of only this kind of experience with a variety of patients, the students seem more ready for some formal theory regarding psychiatry. This leads quite naturally to the presentation of psychiatric nursing principles and basic interviewing techniques. Students, then, with faculty guidance, are expected to begin to apply the theory to practice. It is not unusual to have students role play what occured during clinical experience while having the interaction tape recorded. Process recordings are not effective this

early in the program. The students tend to focus on their writing rather than on their patients. This kind of beginning experience is effective only to the degree that the faculty is in the clinical area with the students. The direct observations made by the faculty are essential to augment student contributions that are necessarily limited. It has been our experience that the students reproduce the theory with varying degrees of competence but, according to student reports, they do not really believe in what they are doing. However, during the second semester in a general hospital, obvious changes in abilities and attitudes were noted by the faculty and supported by the students. The students felt less futility and more success in this setting than in the extended care facility and they attributed this achievement to the experience they had had during the first semester. The majority of students were able to intervene therapeutically and skillfully by the conclusion of the second semester. The few who did not achieve this level of performance were able to utilize psychiatric nursing principles to identify their weakness. Emphasis on psychiatric nursing principles must be sustained during any discussion of a patient, not to the subservience or exclusion of other content, but in tandem with other content so a balance is achieved which is internalized by students. The theory and practice of psychiatric nursing principles culminates in the forth semester with students observing and relating to overtly psychotic people in a mental institution as a part of an Abnorman Psychology course.

A surgical follow through experience is provided during the second semester. The faculty feels that this type of experience is preferable to the traditionally provided block of time in the operating room to emphasize the pre-operative, operative, and post-operative effects of patients. The experience is planned cooperatively with all of the nursing staff who will be involved so that every one is aware of the objectives of the experience and of the role each is expected to assume. The operating room supervisors voluntarily take all of the students on a tour of the operating and recovery rooms before this experience begins. A group of students is assigned to clinical experience with a faculty member on a Tuesday evening. Each student meets her patient, who is chosen by the faculty member that afternoon, and carries out the physical and emotional preparation for surgery within the limits possible. The faculty member offers any guidance needed and acts as a resource person so that the nursing staff in the clinical area does not bear any major responsibility for the students. A student follows her patient into surgery as an observer the next day with the guidance of the operating room staff. Generally, the patients who are selected are those who are expected to provide the students with the opportunity to go with their patients to the recovery room. The final two days of the week are spent caring for these post-operative patients. Upon completion of the experience, each student is required to hand in an inclusive nursing care plan for her specific patient. Among the various objectives achieved during this experience, one of the most apparent was the realization of the effect of pre-operative preparation on the operative and post-operative course of a patient. Reports from the operating room staff indicate that less anesthesia was required during surgery for these patients. The staffs on the clinical areas where these patients recuperated were impressed with the rapidity of the progress that these patients made.

Creativity and innovation are essential if the faculty is to meet the educational goals of the nursing program and if it is to provide for the individual needs of such a diversified group. In a program of this kind there are students just out of high school, some who are former dipolma nursing students, some are former college students, and some licensed practical nurses. All students do not have to be doing all of the same things at the same time. A variety of common and individual experiences can be provided. The faculty feels that this is a necessity by the nature

and purpose of nursing and of a community college. The faculty is obligated to make students feel that they are an important part of the program if it indeed exists for them and if we are to retain them in nursing. We have been fortunate to be able to utilize the students'pride, and often ignored feeling, in being the first nursing class in the college. The individual and group prode unquestionably has helped to make the first year of the program a success. The students have accomplished in a year what might never have occurred if learning had been left soley in the hands of the faculty.

Opportunities are provided to meet the educational and individual objectives of the program. Every effort has been made to communicate with the students and to have them communicate with the faculty. It is not unusual to take class time to discuss a group concern. Every student receives an outline for each unit which contains a patient case study, the objectives, content, assignments, a study guide with a terminology list and a bibliography. The answers to selected study guide questions are handed in to insure the students having some preparation before a unit is started. In addition, the faculty feels that it is very useful to review terminology before starting a unit so the presentation of content flows more smoothly with fewer interruptions for this purpose. Generally, the same pattern prevails, with one exception, during the second semester. The exception is in the use of the study guide questions for each unit. Rather than have written answers to the questions, the students are held responsible for answering all of the questions in their own manner. Pre-tests based soley on the study guide are given before each unit is begun.

Daily pre-clinical experience conferences are held to familiarize the students with the objectives that have been developed for them. On any given day, a group of students may participate in one or several of the following activities: observing the admission of a patient, observing in the laboratory, carrying out nursing care demonstrations in the clinical area, or role palying in the classroom. The daily post-clinical experience conferences are seen as essential for they allow students to share their experiences with the entire group.

Independent study is encouraged through the development of a problem solving nursing care plan on one patient. Students are required to hand in drug cards weekly on the patients for whom they have been caring. This technique helps to re-emphasize pharmacology and to make them more aware of what is happening to the total patient. Time is provided for the review of quizzes. We consider this is a vital part of learning especially if faculty-student involvement is essential. Other than individual questions apart from the group setting, this is an opportunity for vague points and misconceptions to be clarified. Experience has shown that the question of a more gregarious student is often on the mind of a reticent student. This is a very valuable time because of the diversity within the group.

Written and practical challenge examinations on nursing procedures are offered to the former nursing school students and to the licensed practical nurses. The decision to challenge is entirely the student's choice. When a student passes a challenge examination, other experiences are offered to that student. If a student does not pass a challenge examination, she must take the theory and practice with the rest of the class. Initally, there is a great interest in challenging, but this diminishes a fewer students pass. Weakness seem to be greater in theory than in practice. The standards for an acceptable challenge should be no less than thos required for the rest of the class. Untested acceptance of a given student's ability can be detrimental to an entire program. We have found that the experienced student generally has to relearn to execute safe standards of nursing practice.

The faculty has posted office hours so that the students know when faculty members are available to them other than during required class hours. Each student has periodic, planned evaluation conferences with an individual faculty member who has been with her in the clinical area. Individual and/or mutual concerns may be discusses. Prior to these conferences, each student must write a self-evaluation of her performance which is compared with the faculty evaluation. Clinical performance is evaluated by using a scale of observable behavior. These are in the students' possession before a conference to allow them to know upon what they are being evaluated. The faculty takes great care to write daily positive and negative anecdotes which are used to support subsequent evaluation.

These are some of the differences that have been initiated in the nursing program at the Community College of Delaware County. Their development and implementation have stimulated the creation of new ideas which are being incorporated into the curriculum. This "maverick" experience cannot be evaluated completely after only one year of operation and with only twenty students involved. Hovever, if the students" level of functioning can be used as a barometer of success, then we are convinced that this program is doing precisely what the philosophy and objectives suggest.

A PROPOSED TWO YEAR ENVIRONMENTAL SCIENCE CURRICULUM

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Within the past decade, greater attention has been given to the analysis and solution of air and water pollution problems. Vigorous discussions have been generated on local, state, and federal levels. New federal and state agencies and legislation have been created to assist in coping with serious pollution problems.

Many carerr opportunities exist in pollution analysis and control. There is a need for a variety of engineers, scientists, public health experts, and enforcement personnel. Not all jobs require a four-year college education. Technicians are needed by all levels of government, private industry, colleges and universities, and research institutes. They are needed to assist civil, chemical, mechanical, electrical, and nuclear engineers; chemists; biologists; meteorologists; statisticians; sanitarians; and public health experts.

Computer people are much sought after in both air and water pollution analysis and control.

In the words of Donald C. Stove, Dean of the University of Pittsburgh's Graduate School of Public and International Affairs (The Times, Reading, Pa., Thursday, April 24, 1969), " Any competent person who has completed academic degrees in public health practice, environmental engineering, and other relevant subjects will find his services in great demand as increased population and industrialization add to the pollution problem."

In September of 1969, American Chemical Society released a major report, several years in the making, entitled "Cleaning Our Environment-The Chemical Basis for Action." The report's 73 recommendations are supported with discussions in environmental quality and the chemical knowledge at hand to solve environmental problems.

This paper focuses special attention on the problem of associate degree education in the fields of chemistry, biology and applied mathematics relevant to environmental science.

Discussion of Proposed Curriculum

Program Advantages

This Environmental Science Program offers two main features. First, it prepares graduates for immediate employment as assistants to chemists, biologists, or applied mathematicians in the field of evironmental research, analysis, and control; and second, it satisfies approximately one-half of the requirements for a baccalaureate program in chemistry, biology, or applied mathematics without compromising the first feature.

The effectiveness of this program in accomplishing the first feature can only be evaluated over a long period of time. The second feature can be easily accomplished because this program offers 67 of the approximately 130 credits required for a bacca-

laureate degree. The physical education and health requirements common to most programs are met.

Specific Advantages of these Options

The Applied Mathematics Opiton emphasizes practical mathematics and incorporates an interdisciplinary approach to environmental science. The Biology Option is diversfied. Some biochemistry is employed to strengthen the bonds between biology and chemistry. The Chemistry Option emphasizes the laboratory approach to environmental science. The chemistry offerings are designed to develop the laboratory techniques which are basic to environmental science work.

Educational and Economic Advantages

The most apparent advantage of a program of this type in evironmental science is that it makes use of many existing programs, staff, and facilities. Even schools having no engineering department can still offer these options. Obviously, this program can be offered by any Junior College having science laboratories.

This program is efficient both academically and economically. Academically, it permits a student to complete a baccalaureate program in two additional years. It also allows the good student with uncertain financial resources to "hedge" on his education. He may complete the associate degree requirements and, if finances permit, continue in a baccalaureate program with little or no loss of credits. This program lends itself to continuing education. A student with limited financial resources may work full-time after two years of college and continue his education in night school. This had the added advantage of allowing the student to make a value judgement on his overall educational goals after two years of studies. This program lends itself to the student who lacks definite plans. After completing two years, he may make a choice between industrial work and continuing his education.

The academic soundness of this program can best be supported by the fact that practically all of the courses listed are recognized by Graduate Schools. Perhaps the greatest academic advantage of this program is that it permits a cooperative venture between associate and baccalaureate programs within a college or between a junior college and a four-year college. Within a given college it permits qualified students to change either way from one program to another.

Disadvantages of the Program

Since this program has the same entrance requirements for associate degree students as for baccalaureate students, it does not appeal to as large a group of students as do engineering technology programs. At some institutions additional computer facilities and personnel may be required. This program may present some scheduling problems for small colleges offering all three options.

Program References

Individuals who are interested may obtain copies of the Chemistry, Biology and Applied Mathematics Options of the Environmental Science Curriculum and course listings and discriptions by contacting the authors of this paper. A listing of agencies for information on environmental science is also available.

HEALTH EDUCATION CAN BE MEANINGFUL

By Neil Gallagher
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In the past few years the educational practices of today's universities, colleges, and community colleges have been questioned and indeed even challenged by a vociferous new breed of students. Their protests and demonstrations have centered around the meaninqfulness and relevance of curriculum, a curriculum which has been over-grown with ivy and antiquated techniques and procedures. Educational decision-makers who are faced with this challenge and an ever increasing body of knowledge have charged their forces to reexamine curricula as well as restructure educational procedures and techniques in order to place new value on substance and design in education.

Revision of improvement of health education has been limited if not non-existent in past decades. Course content and teaching techniques have sadly resembled those of bygone eras. Students as well as academicians have been turned off by the mere mention of including health education in the community college curriculum. This constraint was not iffounded for past health education courses have been based on rather vague generalizations and abstract concepts which were irrelevant and unmeaningful to the student.

In the book Green Isle Miller states, "Strangely enough there is nowhere the average person can go to learn to live his daily life." This, nowever, is not the case for health education is not merely a foundation for healthful living;it is the foundation for personal effectiveness when it approaches the teaching of this subject in a realistic and meaningful manner. Yes, there are students floundering in a sea of ignorance about consumer, environmental, and personal health, still we call on them to take pride in and to improve their environment. This situation is slowly being alleviated through revised health curricula so the average person can finally be aided in learning "to live his daily life." Complete realization of this ideal can materialize only if health educators, and educators in general, delete the use of classical educational diagnostic techniques and prescriptions and develop new educational strategies.

In fact the results of the teaching-learning process must be examined to determine if the strategies selected for learning were effective before we indelibly imprint a letter grade on the student's credentials. In the past this was not the case. Many educators "threw the baby out with the bathwater" rationalizing their actions. If a student had not studied, he deserved to flunk. For years we have been burying our failures, never analyzing our procedure to see if we failed and not the student. The final results of the traditional educational process have been atrocious. Educators would be fired for such results in industry, or sued for malpractice if in medicine; yet we adhere to the belief that education is a profession. A profession for whom one must ask, for unqualified technicians who are so deeply entrenched in traditional techniques that they seldom find time to diagnose each learner to determine his needs let alone write a prescription that will save the patient rather than kill him? Ask yourself when you last analyzed your performance and its results, or when you prescribed an individual student learning packet in behavioralistic terms. For Education in general it has been much too long.

Health educators today find themselves in an unique position. Their body of

knowledge mobilizes scientific information from sociology, psychology, ecology, and physiology that is helpful in developing and improving the quality of living. This concept of an integrated course that calls on a variety of disciplines to effectively and efficiently explain daily life is so simple and fundamental to hauman achievement one has to marvel why it has not been tried before.

Integrated Endeavor

Educational experiences structrued in this fashion allow for effective utilization of experts and authorities in various fields. These presentations can be delivered in general assembly sessions and they should be multi-media in nature. These can then be followed by a small assembly session not to exceed 20 students where student and instructor analyze, criticize and synthesize the general assembly sessions. Individual involvement by the student is accomplished through independent study sessions (ISS). Each student can research and study at his own rate any of the material presented. The logistics of structuring a program in this manner are not so difficult as they may seem, and the eventual results from this integrated approach are gratifying. In a recent study the integrated approach was compared to the traditional twice-a-week lecture. Some interesting findings were uncovered. First, according to the students they were enthusiastic and interested in involving themselves in the material discussed in the general assembly sessions. They felt the material was more relevant and meaningful than that which was presented in the twice-a-week lecture. Secondly, the results of tests based soley on the general assembly session presentation were negatively correlated (-.87) with the test results from the twice-a-week lectures. This may be partially attributed to the lecture-recall phenomenon. Students attended fifty minute lectures, took notes, and then regurgiated these notes back on examinations. Finally, the test results indicate a direct correlation (-.81) between student success in the general assembly session and their grade point average; however, this may be attributed to their general educational attitude.

Computer-Assisted Approach

With the advent of educational technology educators are now assisted in achieving their objectives by the use of computers and other hardware. The tedious tasks of by-gone days are no longer necessary and educators can take time to evaluate the learner and prescribe learning activities. This writer is presently implementing a computer-assisted audi-tutorial health science program. Students in this program are pre-tested by the computer to determine their health knowledge. Based on this information they are then written a prescription which encompasses behavioral objectivies and programmed material. General assembly sessions are still used with their effectiveness augmented by the use of a student response system. This system allows students to ask questions and receive immediate information concerning the presentation. Since it is connected to the computor it is designed for immediate feedback in testing which provides the instructor with an itemized list of results. This is of paramount importance in such a program for constant evaluation is needed to determine the success of the program and the strategy utilized. Students studying in the independent study mode will have at their disposal what has been termed a "wet carrel." This carrel will contain a student response system, a projector, and a tape recorder. Prepared audio-visual material from lectures and experiments, will be housed in a storage area near the carrel to be checked out by the students at their discretion.

With the aid of this educational hardware it is the firm belief of this writer that education will again be humanized for the instructor will be fred to aid the student and help him achieve success in his educational pursuits. HEALTH EDUCATION CAN THEN BE MEANINGFUL!

PROPOSED FACULTY--STUDENT CHEMICAL RESEARCH PROGRAM FOR JUNIOR COLLEGES

By S. R. Kulkarni
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Research projects which faculty, senior and graduate students jointly pursue have long been accepted by colleges and universities as standard operating procedures. Although there are similar projects involving freshman and sophomore students, the projects are relatively few. There are many educational benefits which can be realized through active involvement at the Junior College level. Such a program is advantageous to concerned students, faculty, and the Junior College.

Student advantages include: (1) gaining first hand knowledge of the nature and methodology of chemical research, (2) learning the importance of (a) clearly defining the research problem, (b) the developing and evaluating of alternative methods to solve the problem, (c) solving the problem, (d) analyzing the results and, if necessary redefining the problem and/or the processes used in affecting the solution to the problem, (3) supplementing and reinforcing the student learning in formal course work through direct involvement in research work, and (4) being able at an early stage in the education process to more fully evaluate interest and aptitude for research work.

Advantages of such a research program for the faculty are as follows: (1) helps the faculty members keep abreast of changes in their fields of specialization through reading and other professional contacts, (2) often assists the faculty members engaged in a research program to keep their courses up-to-date and more relevant to student interest in significant new concepts, (3) improves student confidence in the teachers understanding of a subject and its useful applications.

The institutional advantages of having joint student-faculty research projects are: (1) it will aid the college in recruting faculty members having an understanding of modern research methods and applications, (2) it could well aid the school in attracting better students, (3) it could well enable junior colleges to make contributions to research, (4) it may encourage faculty to help the institution to obtain additional funds to support a broad academic program and (6) it may well encourage and improve a positive faculty-student dialogue.

Objectives

The objectives of joint student-faculty chemical research programs would generally be: (1) to contribute to the students' total educational development by sharpening the students' understanding of the nature, methodology, significance and relevance of research. (2) to enable students to evaluate their career plans in terms of first-hand research experience, (3) to provide an opportunity for faculty members to carry out on a smaller scale a research program which might not be otherwise prossible.

The success of a student-faculty chemistry research project will be dependent on many factors. Among the desirable characteristics which would increase the chances of success of such a project are the following: (1) the project should be directed by a competent and interested faculty member. (This faculty member should be primarily interested in working with students.) (2) The student should have completed at least one full year of chemistry (plus other courses which may be pertinent background for the specific project.) The student should show evidence of ability to carry out

project assignments and to profit from such an endeavor. (3) The student should be considered as a partner. (4) The project should be operated at a level consistent with the students' background and abilities. (5) The student should become involved in the project, if possible, during the early planning stages. (6) If the student's project is part of a larger project, the student should understand clearly the relationship between his project and the super project.

It would generally seem desirable for the students to participate with the faculty in each of the following steps of the research process.

1. Defining a worthwhile problem, identifying solution constraints, and listing alternate paths leading to the major objectives.

2. Evaluating the compatibility of objectives.

3. Planning experiments and determining equipment needs for the more promising methods of approach.

4. Deciding on judgement criteria for choosing the appropriate route to problem solution.

5. Execution of planned program (including calibration of equipment, taking measurements, data reduction, etc.)

6. Testing to see if the data fit existing or proposed models (determining deviation between the physical picture and the ideal model.)

7. Checking the validity of the hypothesis (In certain situation, test if independent routes lead to the same conclusion. Test equipment and computational procedure on known systems.)

8. Evaluate applicability of findings to other areas.

The research performed by the student places major emphasis on developing the students understanding of the nature of research and its methodology and minor emphasis on contributions to the chemical field, while the chemical research performed by the' faculty member places major emphasis on contribution to Chemistry.

When the joint faculty-student research project has a close relation to a separate faculty project, the student should have an understanding of the goals of the faculty-student project and the goals of the separate faculty project. The student should understand the significance of both projects. (This is important for it may permit the student to propose creative alternate routes not suggested by the faculty member in reaching the desired objective of the main project. This can be an extremely significant contribution to the development of the research potential of the student.)

National Science Foundation For Undergraduate Research Program

Although the NSF undergraduate research participation program is presently restricted to four year Colleges and Universities, perhaps if sufficient interest is shown by the Pennsylvania Junior Colleges in joint faculty-student research, a case may be built for requesting the NSF to extend its good services to those Junior Colleges which show interest and demonstrate their research capabilities.

As an aid in demonstrating capabilities, local industry may be willing to donate surplus equipment, give open financial assistance, and to permit colleges to make use of such expensive analytical equipment as gas phase chromatograph, IR, UV, NMR and Mass Spectrometers when such devices are not in full use by the companies.

If the Junior Colleges band together in a united effort to stimulate activity in the research area and exchange useful information, a truly worthwhile objective amy be within reach.

There is also a good possibility that Junior Colleges may cooperate with neighboring four-year colleges in the use of UV, IR, NMR and mass specgrometers, Polarimeter, Gas Phase Chromatographs, and library facilities.

We, therefore, propose that Junior Colleges take the initiative and develop good working relations with nearby four-year colleges to promote and encourage student-faculty research in the most economical manner with proper administrative controls. Of course, such cooperation should be carried out in a manner conducive to maintaining good relations between the colleges.

In addition, important contacts can be made with industry and other colleges by attending professional society meetings such as National and regional ACS meetings. Since the American Chemical Society membership has many members from Junior Colleges this av enue shows promise.

Typical Research Projects

Individuals who are interested may contact the authors of this paper for information concerning typical research projects.

AN ATTEMPT TO RESPOND - SCIENCE AND SOCIETY

By James M. Strong
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In any discussion embracing both science and the humanities one always is tempted to develop pat definitions by which to judge, measure, or damn these two very general arenas of human involvement, depending upon one's prejudices. Like most other once separated arenas of learning, today a great gray area should spread over black and white. I will not attempt a specific definition of either the science or the humanities except to paraphrase liberally the words of James Conant,[1] who wrote that the sciences have tended to be historically based on an idea of physically feproducible experimentation which might or might not lead to new concepts and further experimentation.

During the past two decades several rather unassociated events, have occured which, I believe, have made painfully necessary a continuing and meaningful dialog between men and women of the humanities, so-called, and sciences, so-called.

The first of these events was the Rede Lecture delivered in 1959 at Cambridge by C. P. Snow.[2] In that discourse he proposed that there were today "Two Cultures"* represented by the scientific-technologic and the literary-humanistic traditions. He described the dangerous gulf which had opened between them.

Of those who took issue, perhaps the most virulent was Professor F. R. Leavis, who, although he attempted, verbally, to destroy Snow,[3] admitted that:

> the vance of science and technology means a human future of change so rapid and of such kinds, of tests and challenges so unprecedented, of decisions and possible non-decisions so momentous and insidious in their consequences, that mankind--this is surely clear--will need to be in full intelligent possession of its full humanity.

The second event was the publication of Silent Spring[4] by Rachel Carson. Dealing with pollution and pesticides, her book clearly pointed out man's dependence upon his total evironment.

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* Snow noted in a later commentary that Merle King had published in 1957 an article which anticipated the basis of his "Two Cultures" theme.

1 Conant, James B., On Understanding Science, Yale University Press, 1947, pp 37.

2 Snow, C. P., The Two Cultures and A Second Look, Cambridge at the University Press, 1965.

3 Leavis, F. R., Two Cultures? The Signifiance of C. P. Snow, New York: Pantheon Bcoks, 1963.

4 Carson, Rachel, Silent Spring, Greenwich, Connecticut: Fawcett Publications, Inc., 1962.

Third, Watson and Crick[5] on the basis of their own work and that of others, announced the long sought structure of DNA and their profound corollary prediction: "It has not escaped our notice that the specific pairing we have postulated immediately suggests a possible copying mechanism for genetic material."

The fourth event took place early this year when a group of four radio astronomers[6] at the National Radio Astronomy Observatory in Green Banks, West Virginia announced that they had convincing evidence of polyatomic organic molecules (formaldehyde) in deep space. It was noted that this discovery could have been accomplished several years ago except for an intransigent "intellectual crust." The accepted dogma stated simply that such molecules could not exist. The importance of this finding is, of course, that more complex molecules, such as amino acids, may be found. Such findings quickly extrapolate into the area of molecular biology.

In the first instance, two men of great repute, representing generally two divergent disciplines at best, are making noises which nowhere approximate communication, due to their own eccentricities, pride, and prejudice of intellect.

With respect to Rachel Carson, she seems to say that man is, just now, after centuries, discovering that he is dependent on his enviroment for survival.

Respecting Watson and Crick we find ourselves at the doorway of possibilities (to be mentioned further) for which science cannot, nor does it desire to, take full responsibility.

Finally, few men in the sciences are willing to take a dogmatic stand after the traumas of the past decade. For the time being there are once again infinite possibilities, and a new breeze of exploration and discovery is blowing.

All of these events point toward an increasing antagonism between the men of the sciences and the humanities that will make the Darwinian episode seem pale by comparison. In that earlier confrontation each man was free to accept or reject Darwin's thesis and life could go on, even though some cornerstone of philosophy were a bit chipped.

But at about the time of the Darwinian controversy, science was retreating behind a palisade called "Scientific Method," and was saying, in effect, " so much for relevancy." Occasionally, thereafter, members of the scientific community were trotted out, with bayonets in their backs, and asked to develop various assortments of goodies for mankind-- the Haber Process*, for instance, and a few, more sophisticated devices.

There are several unique characteristics of the present interaction of the sciences and humanities which, I feel, are of vital importance.

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[5]Watson, James D., The Double Helix, New York: The New American Library, 1968.

[6]Chemical and Engineering News, Vol. 47, #14, March 31, 1969, pp 11.

* The process of reacting atmospheric or elemental nitrogen and hydrogen to make ammonia. A first step in explosives manufacturing. Developed in Germamy by Haber in 1915.

First, scientists are becoming more aware that in many areas of research they are dealing with psychological and physical dynamite, and that with respect to the continued existence of mankind, their findings are, literally, infinite.

Two examples quickly come to mind: the studies of possible genetic mutation caused by common products presently being consumed by the general population[7,8] and secondly, the future prospect of planned genetic control.

Unfortunately, data dealing with the effect of various chemicals on human genetic materials is only slowly obtained. Even LSD has not been conclusively shown to have ill effects. The question is obvious. Can we afford to wait until a large segment of data is collected on human beings some generations hence since we obviously cannot hold massive controlled experiments on human beings? Must we at this point extend the findings noted on lower animals to human beings and demand imposition of rigid and precise controls? Who is to decide and on what basis?

To speak briefly to the second point, I would like to quote from a recent lecture by Professor Robert L. Sinsheimer presented to the Fordham Chapter of Sigma Xi.[9]

> There has been much talk about the possibility of human genetic modification--of designed genetic change, specifically of mankind. I think there should be much discussion of this topic. I think this possibility--which we now glimpse for the first time is potentially one of the most important concepts to arise in the history of mankind. I can think of none with greater long-range implications for the future of our species. Indeed, this concept marks a turning point in the whole evolution of life. For the first time in all time a living creature understands its origin and can undertake a design its future.
>
> This is a fundamentally new concept. Even in the ancient myths man was constrained by his essence. He could not rise above his nature to chart his destiny. This day we can envision that chance and choice.

And later after some technical detail as to the possible use and methods of genetic change in treating diabetes be added.

> The larger and the deeper challenges, those concerned with the defined genetic improvement of man, perhaps fortunately are not yet in our grasp; but they twoo are etched clear upon the horizon. We should begin to prepare now for their reality.

The second unique characteristic of our interaction is that the encounter is not well defined; that is, there is no particular topics of dispute, but rather a general collision of opinions on topics ranging from medical research to jurisprudence.

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[7]Chemical and Engineering News, Vol. 47, #21, May 19, 1969, pp 50.

[8]Chemical and Engineering News, Vol. 47, #23, June 2, 1969, pp 55.

[9]American Scientist, Vol. 57, 1969, pp 134-142.

Third, the once hard sciences are no longer "hard". For example, Dr. John J. Wittrig[10] of the Veterans Administration Hospital in Murfreesboro, Tennessee, told the 14th annual conference of VA Cooperative Studies in Psychiatry that the

> effects of lithium in the body are beginning to be better understood through improved analytical techniques, but the reliable data are yet few in such areas as mental diseases and during birth. Autopsy data suggesting high concentrations of lithium in the midbrain correlate with histories of manic depression.....From his and other's work, Dr. Wittrig speculates that lithium may be held in the midbrain through binding with some yet unknown organic molecules. The lithium-organic complexes than could influence organic or enzymic processes in the brain.

In this short article we find analytical chemistry, organic chemistry, psychiatry, inorganic chemistry, psychology, biochemistry <u>all</u> used in one study.

Our fourth uniqueness is found in the present tremendous interplay of political and economic forces. Only recently has the national government taken the first faltering steps toward investigating the total enviroment and the total relationships of science and technology with society. Political pressure groups both industrialist and conservationist, are coming increasingly to battle, each claming irrefutable evidence for its case. Speaking for neither side, John C. Maxwell[11] estimated in 1965 that our population will completely absorb our water resources by the 1980's or 1990's. He noted further that:

> Now we plunge into the numbers game of..water budgets, where it seems to be possible to prove almost any point and with well-founded calculations! The confusion arises partly from absence of data, but largely from the extreme complexity of the subject itself and from the difficulty of defining terms precisely.

Thus we are caught in a tide of many people saying many things with many perhaps dubious numbers. Perhaps we could all use a good dose of salts, reality and honesty. Once again, there is more at stake than a years profit or a splintered theology.

The last point in which, it seems, our encounter is unique, comes from the attitudes of scientists themselves. At the present time, I feel,many workers in science are deeply concerned about the status of their public images and of their professions in terms of simply "Quo Vadis?"

I will not for an instant pretend that the present search for scientific relevance is unanimous. Nor is it necessarily to be better the total aspect of man's existence. Nor will I pretend to speak to any aspect other than my own specialty, but in an exchange of letters between Foster Moose (Southwestern at

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[10] Chemical and Engineering News, Vol. 47, #16, April 14, 1969, pp 37.

[11] American Scientist, Vol. 53, 1965, pp. 97.

Memphis) and myself dealing with general chemistry curricula, Professor Moose asked, "Then how about some attention to (the) impact of science on social problems; how can scientists help solve social problems, etc. If you have any desire to expound on such questions, my ear is cocked in that direction."[12]

The search for a new relevance is already in a state of interaction with the humanities, and though the reasons for the search are legion, I would like to speak briefly of three of the most pressing.

First we must consider the increased role of the general public in finding scientific research. Involved certainly, at this point, is the individual's pride in the scientific achievement of the past, and some sense of its threatened present status. At a recent meeting of the Chemical Institute of Canada[13] it was noted that today, though,

> things are beginning to change. As cientists, we're being asked to give up our narrow loyalty to an institution, to a discipline, and, instead, to think of our loyalty to Canada. We have to justify our work more than ever...because society is asking what we're doing with its research dollars. An unless we scientists answer this question and formulate our future, the nonscientist will do it for us.
>
> Thus, did Dr. Bert B. Migicovsky, director, general research branch, Canada Department of Agriculture, crisply lead off a one-day symposium on the future of Canadian research and development.

Second, I feel that scientists as a class, culture, and individuals have, of their own accord and by public opinion, been dangerously dehumanized. At the time of the publication of the Double Helix the Wall Street Journal[14] was of the opinion that author Watson, " in the long run, may have done science a favor. In these days when the public is asked to allocate billions for scientific research, it's of some comfort to know the spenders are human."

Finally, with some repitiveness, there is a growing awareness of some of the possible pitfalls into which science, a good press, and an unquestioning, perhaps apathetic, public have led us. Coupled with this is a subtle desire to prove the worth of scientific achievement in the whole community instead of just the bread and circuses of new consumer products and wonder "wonder drugs." The shift is noted in a 1968 editorial[15] in the Journal of Chemical Education entitled "Another Chance for Science." After briefly mentioning the problem of world wide malnutrition the editors point out that

> the picture we get from the experts is that nearly all the presently conceived solutions to the problem of providing the absolute necessities

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[12]Dr. Foster Moose, Professor of Chemistry, Southwestern at Memphis, Memphis, Tennessee. Private Communication.

[13]Chemical and Engineering News, Vol. 47, #25, June 16, 1969, pp 46.

[14]American Scientist, Vol. 57, 1969, pp 1.

[15]Journal of Chemical Education, Vol. 45 #10, October 1968, pp 625.

> for two-thirds of the world's population are dangerously inadequate if not hopelessly impracticable. The one hope we get from the experts is that science can provide much of what is needed for realistic, workable solutions to these problems. However, it takes no more than a moment's reflection to realize that the effort needed is at the very least comparable in intensity to the war effort of the scientists of all the rival countries during World War II.

And further:

> This is another chance for science. For those who labored with such fervor during the World War II, it offers a new and far more compelling purpose. For those who have found moder-day science challenging but unfulfilling, it offers redemption from irrelevance. For those who can identify with the hungry masses it offers the opportunity to abolish starvation as a human ill. For all scientists, it offers the chance to use our talents and our experience in a manner that can enrich the world. If this appears to be an urgent mission of mercy, it is much more an exigent means of grace. If it seeks to proffer human dignity to the impoverished, it serves to redefine it for the affluent.

For the very sensitive, the preceding discussion may seem trite; something which a computerized society might call philosophy. It is my feeling, however, that the instances mentioned indicate or symbolize a hesitant but fertile notion of our total dependence on each other in a realm of activity which has been traditionally noted for its independence.

There is a hesitant hope (blasphemous for some) that other disciplines will join the sciences (or vice versa) in a new search for direction and not in terms of outworn condematory cliches.

It should be asked by all concerned, just what all of this has to do with junior and community colleges. Mr. Charles W. Ingler, in the Educational Research Bulletine[16] made the following statement:

> What is the main difference between the public school education and higher education? It is not that one group of teachers is better or worse than the other. It is not that one level of work is more important or more difficult than another. It is not in all cases, even that one area of study is more advanced than another.
>
> The basic difference is this: that when the student of seventeen to nineteen years of age goes beyond the twelfth grade, he moves into an area of study in which unprovable ideologies and dilemas begin to appear. It is at this stage that he comes to grips with the questions for which the human race does not yet have conclusive answers, and he now must participate in the pondering of these questions.

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[16] Educational Research Bulletin, 40, February 8, 1961, pp 29-31.

> In his earlier years he was studying descriptions of known facts, for the most part, and during his adolescence we did not want him to lose faith by worrying over imponderable problems. At the college age, however, he assumed to be ready for the difficult and sometimes discouraging study of both popular and unpopular ideas, as well as facts.

Unfortunately, many of us especia ly in the technical areas, are so concerned about producing a product for competition that our time devoted to the application of principles from our own discipline to other pertinent areas of discourse is very limited. Some academic discussion[17, 18, 19] has been reported and for those who have formal class time, more power. Indeed, in our classes we can give as distorted and prejudicial a view as can be found unless we are swiftly brought up short by another of opposite prejudice.

My first observation of this was made in my second teaching year. During the later part of first semester at Kellogg Community College, one of the psychology and philosophy instructors and I entered into a discussion over dinner in which he asked, "Can you prove that the atom exists?" After a technical soliloquy, I suddenly realized, perhaps late in life, that against my associate's particular demand for proof, I was indeed helpless. I finally was forced to admit, may Rutherford forgive me, that the Atomic Theory is an extremely useful, pragmatic description of the way things appear to work; but beyond this, I could not really defend, on the same ground, atomic existence as such.

His second assult took the form of, "Don't you realize that if the Atomic Theory is correct, then the idea of free will is no longer valid as a moral basis?" To which I replied, "Well, if it's outdated, get rid of it and find something else."

Our discussion devolved into a verbal brawl.

The encounter fortunately did not end at that point. Realizing that perhaps more discussion was in order and that perhaps some of our better students could at least join in the battle, we arranged, thereafter, a weekly meeting with some

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[17] Journal of Chemical Education, Vol. 46, #3, March 1969, pp 185.

[18] Chemical and Engineering News, Vol. 47, #30, July 21, 1969, pp 37.
An interdisciplinary program in science, technology, and society has begun this fall at Cornell University, aided by a two-year, $140,000 grant from the National Science Foundation. Dr. Franklin A. Long, director of the program, says that it will focus on problems of national and worldwide concern such as the relationship among science, technology, and public policy, including defense policy, world fodd supplies, ecology, population growth, and increased urbanization. The undergraduate-and graduate-level program will include seminars for faculty and students, development of new courses and curriculums, guest lecturers, and research.

[19] Chemical and Engineering News, Vol. 47, #32, August 4, 1969, pp 39.
A center of the study of state science policy has been set up in Pennsylvania. Finding the center are the National Science Foundation, $61,000; Pennsylvania Science and Engineering Foundation, $25,000; and Pennsylvania State University, $12,595. The center will be at the University Park campus. Gov. Raymond T. Shafer says the center will be devoted to suing science and technology to find solutions to the problems of the cities, pollution, and other environmental dilemmas.

of our better students to discuss, as we understood them, areas of concern in which both voices should be heard. Our group was small and select, from varied backgrounds, and not hesistant about expressing adverse opinions. It was indeed an experience to be carried on.

At Butler County Community College an instructor in psychology and I, from a hard science/technical background, proceeded in the same direction. After about ten weeks, we identified those persons whose grades, at least, indicated perhaps they could afford an hour a week for what I will frankly call a directed bull session. We approached a group of about eight students whose schedules, work loads, and other commitments would allow a weekly meeting. The idea of a meeting at night was not popular since many of the students worked at outside jobs or else would have to commute a rather long distance.

One sidelight, which pointed out what we were hoping to accomplish, came into focus when I questioned one of the young ladies as to her possible interest in such a discussion: after a brief description of what we had in mind, she noted her interest and then unvelievingly said, "Mr. Strong, I though you were just interested in labs and stuff like that!"

We started off well, with good attendances and reasonably good rapport. Our topics included the population explosion, the meaning of a humanistic and scientific symbol, if you were the Dean!, XYY genetic defects and their possible implications, and LSD, what is the individual's responsibility? We were dealing with students who, for the most part, were products of an extremely conservative community. As time went on our group became more a dialog between the psychology instructor[20] and me. I distinctly remember the session in which we attempted to discuss scientific and humanistic symbols. The opening gambit of the group was, "Oh, it's going to be one of those."

This year, after a similar group has been established, we will develop a list of topics which are of general interest and which will be directed along, perhaps, more specific lines. The group will be encouraged to pick its own topics, hopefully at a challenging level with the idea to develop candor among ourselves.

We are also instituting an experiment of interschool discussions via audiotape. This may have a stimulating advantage of engaging in discussion students of greatly varying backgrounds.

Finally, what are we hoping to accomplish? That somehow we can encourage our students to actively explore their own intellectual dignity; to take nothing which we say as absolute certainty, and perhaps to realize that sooner or later, decisions will be required of them which cannot be answered by a demagogs dictation but can only be answered from an intelligent personal courage.

Further, we are trying to teach ourselves the difficult path of mutual respect and understanding; to challenge in order to find common symbols and a common language; to discover our own humanity or lack thereof; to learn that we will be living with each other a long time hopefully; to realize that we cannot revert to

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[20] Mr. Theodore Caine, Sullivan County Community College, Sullivan County, New York.

Cro Magnon and start over again. We must go from here. We must proceed now. We are, in our total existance, a threatened specie, perhaps more insidously so than the Mountain Gorilla or the California Condor. Perhaps our knowledge can save us as man, but only if we forget our egocentric manias and genuinely go forward together.

TEAM TEACHING AND TECHNOLOGY IN ASSOCIATE DEGREE ENGLISH

By Margaret G. Sheridan
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First I must acknowledge the really "ticky" title attached to my paper by the program committee. Thank you. "Team Teaching and Technology" it is. I shall talk about one term of such experience.

Team teaching is just like team plowing. Two creatures in one yoke do more than twice as much work together as one can do separately. In this case the two creatures are a gentleman named G. Ronald Wilson and I, Margaret G. Sheridan. The field we worked was a class of nearly forty freshmen: some Winter Term registrants, some second term freshmen, and at least four who were repeating their first term of English. All were associate degree students who had failed to achieve placement in English I.

The syllabus for English 800 is a loosely prescribed one, made by a committee of three faculty from Commonwealth Campuses of The Pennsylvania State University, for the stated purpose of preparing these students to succeed in English I. I happen to be a member of that curriculum committee.

The term Winter 1968, I had planned several things I wanted to try, and some I wanted to prove, in an attempt, at the request of Dean Harold O'Brien, to try to find out the most efficient or best techniques to use with these freshmen. Consequently, I had my term plan pretty well in mind when the opportunity for team-teaching came up. It came about this way. My being unexpectedly in the hospital as the term opened led to Ron's taking both his class and mine, together. When I returned he and I were permitted to continue as a team--something we had talked about previously but had had no opportunity thus far. We followed my term-plan, because I had had supplies already ordered for some of the experimental lessons I had asked permission to undertake. And then, he too was interested in the ideas. This was no case of one expert, as is frequently the case among team-teachers. However, he is essentailly interested in linguistics, as I am in writing, if one wishes to quibble. Besides, there is enough ham-actor in each of us to make us willing to work in the other's presence.

The general plan for our teamwork was to divide the 75-minute period into four parts: ten minutes, twenty to thirty-five minutes, a second twenty to thirty-five minutes, and a final ten minutes. The first ten minutes we used together, taking attendance, passing out or collecting papers, and commenting on homework, for example. The two large segments of the period were used by each of us, alternately, usually, while the final balance of time was handled by the one who had presented the material leading to the assigned homework. Any further time remaining was used with a rapid drill, such as spelling, or inflection. On the day of the class, but preceding the class period, the allotment of time was carefully estimated in a period or so that we regularly used together, to plan that specific day's work. Moreover, all the week's lessons were in our minds before any were made specific. Hours of private preparation, of making transparencies, dittoes or outlines, or correction of papers fell between these sessions. All in all, we worked quite closely together, asking each other to comment on any choice of ways of presenting

material, or on the success of preceeding presentations. Likewise, we took turns correcting the themes and other papers done for the class. When an occasional objector (there were only two) said that the other teacher would have given him a higher grade, the other cheerfully recorrected and graded, and usually came out with the same or a bit lower grade, to the student's dismay. For, we had mutual standards and objectives, and no student ever realized how much more severe a set of standards grows throughout a term.

Now, preparing a student to succed in English I meant to us to enable him to write exposition in response to readings of editioirals or articles in quality magazines, and to enable him to respond to current problems in his life and in the world. For English I he must write simple prose, well organized and coherent, and without sentence errors, to the length of four to five hundred words, including introduction and conclusion. On the other hand, in the years I have been at Altoona, I have learned that vocational motivation is about the only successful way to appeal to the two year student to get him to write, therefore, I try to make many of the assignments of organization and paragraphing, as well as the material, fit the future uses of English these people may have. I try to create atmosphere that does not suggest any tinge of high school methods. I tell them that I do not assign "busy work," I stress that they have been taught the rules; now they must understand the philosophy behind each one. By philosophy I mean, of course, reasoning. This way they avoid saying a thing is right "because it sounds right" to them, for it must be explained, not merely stated. I might add here that I try to speak as correctly as is possible within a colloquial frame, for these classes. Very consciously I correct myself before them, and purposefully, to show them the usage for which some idiom or colloquialism of incorrect lanuage, that is sub-standard, is too familiar. Then, when a question of the standard form's sounding awkward to them occurs, I tell them to say it as I would say it, correctly, when they are in doubt; then their "ears" help them.

The one other thing that I insist upon is giving the students security. First, I tell them that they will pass this course; all they have to do is be sure to finish all the assignments, and to learn all the principles presented, many of which they have seen before, but in twelve years have not learned. Now it is up to them. They must ask questions and apply themselves or never know. I quote, "The buck stops here." Usually a storm of "We never had to write themes;" and, "We had poor English teachers," arises, but I respond, "All twelve years?" I go on to insist that each one has learned something or he would not be in college; therefore, I doubt that he has been seriously mistaught or never taught. I assure these doubters that I will teach anything the class actually does not know, but for individual weaknesses, there will be appointments in my office, and they will study to overcome their failings by themselves. Then I also have one other "tough" rule. I accept late papers for only half-credit, of F, though every paper must be turned in, or an automatic term grade of F results. After one try, every student presents a prompt paper or one accompained by a nurse's or doctor's excuse. I explain this policy by saying I am actually doing them a favor; since they will have about three hour's homework for each class recitation, I am saving them from allowing a deficit of six to nine hours to develop. The last security measure relates to the Penn State policy of demanding correction of errors marked on English themes. These amendations I "correct" for the first three themes, with great care. Thereafter a cursory check suffices before I make the original pencil-grade a permanent one in my grade-book. Sometimes I think this is the most valuable part of their course, for in doing it the student must explain why he was wrong and is now correct, by quoting a principle from his authority, the text, or the dictionary.

To return to our team teaching, we were able to lavish attention upon these students, since there were two of us. Equally, a student feeling unable to get along with one of us, could consult the other. Our policy in general, before any individual help was given, was to ask the student what he thought should be done, first, or to inquire how he was planning to help himself in this problem, before we did anything about it. Since we kept all finally corrected papers in manila folders filed in our offices, we had ready reference available to see what errors had been in the person's work before. Then he and the instructor planned how he might drill himself out of his difficulties.

One ancient, effort-saving device for us was alphabetical seating. As my memory file is keyed to the alphabet, this facilitates my learning every name in any of my classes, and saves time in recording every paper, for these can be collected in nearly perfect order, except for a very-tall person, or some near-sighted ones, etc.

Among other time-honored devices we used was the prescribed workbook--for review drills in punctuation, spelling lists, pronoun and verb exercises and drills in sentence structure.

Only once did we rely entirely upon lecture. We tied this in with the skills we had been teaching from the first class--how to study, how to read better, and how to take notes. This latter we exemplified by projecting an outline of the lecture as the lecture went on, for the students to follow (copy, if they wished). It was a topical outline, and showed to the students that this might be the form of notes, while the sentence outline would lead more exactly into an organized theme. At this point we had already done two exercises on turning the topic into the topic sentence of a paragraph, and on turning the sub-topics into supporting or contributing sentences. Then the lecture topics showed how a speaker expands topical notes when he knows his subject very well.

Twice the film-strip was also tried. The reaction to the prepared strip was negative and ephemeral. The same thing happened with commercially prepared transparencies. They too were unimpressive. But as soon as we turned to the overhead projector with the students' own work, we had response. Furthermore, we had recall and learning evidenced by their remarks the next time and after that.

With the projector, we studied composition from introductory paragraph to concluding paragraph, in that order, paragraph by paragraph. This was determined by a request from Professor William Hill, our coordinator of English at the Commonwealth Campuses of Penn State. The paragraph under study was written in class, while we both walked about the room, helping. We praised, suggested revision, and finally--and this was our innovation--insisted that the results must be written by the students directly upon the transparencies furnished. We have since had the students prepare an undersheet with margins and lines ruled upon it before using the plastic. We also have had to change from grease-pencils to the special pens adapted to this work. Fortunately, when we walked about, we were able to find some very interesting opening paragraphs, and with these to compete with, the rest of the class out-did itself in bringing in good paragraphs, whether these were the ones we had seen in class or were written over. Next in order, we assigned an introductory paragraph and a summary of what was to be the development following. After our approval, the paragraph-two's were realized in class, and written immediately upon the transparencies for exhibition. Comment was required from the class, upon these, and the ideas of transition and of coherence through transitional expressions were introduced and practiced. Of the

developmental paragraphs we had many, each expanded by at least three points or sentences full of relevant material, besides topic and concluding sentences. We displayed samples of good unification, and generally used the transparencies like panels of a chalkboard, for we could remove the pen-writing easily, to try out the suggested better-wording--but always as the class recommended. Here it was that one more innovation came in. The presiding instructor turned to the other professor, his team-mate for any suggestion not found by the class. This role-playing was accepted by the class as if we were classmates.

Apropos of the three points in a paragraph, and three paragraphs in a theme, let me diverge to a device for securing this for students. From my debating days I share with freshmen these formulae: think of the topics as divisible into physically, mentally, morally: how does this then relate to people? Or economically, politically, socially; how does this issue affect us? Or in relation to the individual, the family and the community--or even state and nation, continent and world; what are the consequences? Surely there are ideas available among these, unless the topic already has a built-in division, such as one of my favorites, The Three Hats in Grandpa's Closet.

One fateful day I brought in my tape-recorder into which several of the previous day's paragraphs had been read or taped. Only two of the class reacted favorably to this. One of these said he always recorded his themes before making a final copy. He continued that the recording showed him where to punctuate, by where he paused. --Well, he wrote mature themes, all right,and frequently used what were, he thought, effective sentences; that is, they would have been, if we had not called them fragments! This seemed to show that the recorder tells one what he wants to hear, and does not show how another might read or hear it. It was unfortunate for him that one does not sound the semi-colon and dash, compared with the comma, nor distinguish it from the period, always. Since then, in my search for effective devices, I have heard that it is possible to correct a written theme by taping the instructor's comments instead of using the red pencil. I have not been able to verify this, tape-recorders and tape being so much more expensive than red ink or pencil.

We also had one oral presentation read from prepared papers, to give the exercise in presenting a report that would be necessary to these students. We sent them to observe at an Industrial Fair or at a Shopping Center, and to report on at least three displays, one of them in detail. Almost all of the class did this very well. The few that simply could not bring themselves to speak before their classmates saw one or the other of us in his office to perform alone. Again, given a choice of two, the student felt more sympathy was available from his choice, whichever professor it was.

By the end of the ten weeks, we were using the overhead projector for about half of each presentation. More than that lost attention or effect. We saved much time by bringing in for display an outline, already written on the transparency, with a large space under each topic for the class to realize the sentences which we then wrote directly at their dictation. From such an outline, we might have them then derive concluding paragraphs at their seats. This was better than old friend Chalkboard, for there one always loses the "blind-spot" behind the writer's body, or arm at least, as well as the top of the panel not easy to reach and the bottom-not every one can see over the big bodies of college freshmen these days. One thing we think we noticed--at least it deserves investigation by qualified people--the students in these classes, recorded as 20-20 in vision, do not see as small letters, even on the

overhead projector, as do equal degree students. We found that exercises written with a portable typewriter were not legible to these students. They needed a fairly large hand, full twelve-point pica, preferably with space around the letters. Fourteen-point would have been good. Quite close range did not seem to help them.

There was one lesson that showed the value of the good old chalk-board on two sides of the room. That was the evolution or inductive presentation of the verb in all its tenses, both voices, and three moods. Here panel after panel was ready for reference from the instant we "discovered" and recorded the forms. Continuously, all stayed where everyone could refer back without turning page or unrolling cylinder--with no more than moving an eye. For this, for some auxilary work on inflection, and for variation from the concentration upon the lighted screen, we relied on the indispensable chalk-board.

Another old friend that we used often was the ditto--formerly the mimeograph, to whom we do still refer, but the duplicating machine of whatever means. For example, once we provided paragraphs for them to mark with our correction signs; another time it was paragraphs to improve or edit; still another, kernels of thought with which to develop good sentences. Then we turned on the projector to show them they "were nearly as good as Hemingway," et al. We also let them compare their editing and grading with two samples like theirs which we had each edited and graded differently, but correctly. Toward the end of the course, Ron or I would copy a student's paragraph for the class to correct, as they began to recognize each other's writing on the transparencies, and we tried to protect anonymity.

At the end of the course, we asked for critical comments and had each student mark a questionnaire at the end of this final examination period. Both of these were anonymous, and each comment was made before either the student or we knew how well he had passed the examination. The class agreed that their time had been well spent; that the classes were interesting; that they approved of the overhead projector highly. They admitted that they had studied even more than required; and that they had learned most from the correction of their themes. This probably meant not only the projection, but the learning how to go about correcting a theme. Several who had never heard of tense of verbs, and all who seemed unsure of the subjenctive, pointed to that lesson as profitable. A few were known to complain that we made them think too much; some enjoyed the way we would occasionally interrupt each other, to add some comment--said it was like a game, and kept them awake. One claimed he needed the time most teachers waste going from one part of a lesson to the next, to relax. He moaned that two teachers made this time non-existent: but others liked the additional attention available from two teachers, and the interest a change in voices provoked, while one repeater said that he liked"the fact that the material was presented as an idea rather than a rule." This, I believe, refers to our reasoning out of punctuation and grammar, which I had dignified, you recall, with the title "philosophy" of punctuation. Seven students thanked us for teaching them more in ten weeks than they had been taught in the preceding six years.

All of these comments, however, are probably not as valuable judgement as the fact that every student who did all the work passed--not because we shoved him, but because he had worked and could meet the requirements. It was, unfortunately, impossible to follow all to their diplomas, for several were drafted, and some dropped out because they had obtained jobs they liked in the ensuing summer, but of the rest, at least healf of the group, appeared at the June informal recognition of Associate Degrees at our campus in 1969. Incidentally, the two repeaters who were not drafted got substantial C's from and after our class.

I hope all of this will help some of you. But I stop before my Beethoven coda overpower my good sense. This is talk enough about one class!

ENCOURAGING INNOVATION IN A COMMUNITY COLLEGE ENGLISH DEPARTMENT

By Jack H. Minnis
Community College of Philadelphia

I would like to begin by offering the observation that we are assembled here for a boisterous gallop of Education's latest hobby horse: Innovation. Resourceful, inventive, innovative--these are the key adjectives. Unless we can apply them to our teachers, teaching or department, we change the subject. There is nothing at all wrong about riding a hobby horse so long as we understand that we are not about to challenge Stanley Dancer. There is likewise nothing wrong with discussions about innovative teaching so long as teaching is the emphasized word.

Consistent with that observation, I do not propose to describe of invent a list of innovations by teachers in my department. Instead, I would like to descrive the atmosphere which I think must exist if innovation is to exist. About some of the steps which must be taken (and some which must not), I can be only tentative and theoretical; about others, experience and conviction reinforce my brashness and resolution. In every case, the moves to be made are moves toward excellent teaching. Innovation in teaching, after all, is simply teaching something different or something differently.

If it isn't already done, the first thing to do is to set up clear objectives for each course taught in the department. As soon as that has been accomplished, a system of changing them must be established. Course goals, along with textbooks written by department members, are the sacred cows of English departments. Once they are set, they are endowed with holy priority and permanence which do as much to stifle innovation as anything except, perhaps, those teachers who have bestowed upon them their holiness.

Those same teachers are among the vanguard calling for massive changes in the preparation our graduate schools provide for potential college teachers. I must admit that playing Oedipus is great fun, but there are other ways for us to prove that we have come of age than acting out the ritualistic maiming of the schools from which we sprang. From the university professors we learned many bad habits, some serious enough to interfere with education, but from some of them we inherited a love of expression and genuine desire to share that love with students. Any change in graduate education which might deprive future teachers of these two qualities cannot be tolerated, even if that change completely eliminates the influence of the few sadists and fools on the staff of every university.

I would ask of the graduate schools that they pay more attention to the processes of writing and reading. Courses, or at least emphases, on these processes would provide any teacher the understanding which is the basis not only of innovation, but also of teaching. In our call for innovation, we must keep in mind that innovation is of no value for its own sake; it must be part of excellent teaching. To insure the context of excellent teaching for our innovation, we must ask the graduate schools to teach teachers to innovate, not innovators to teach.

Because we have spent so much time trying to tell the graduate schools what they should be doing, we have overlooked a dreadful disease: taxonomia. While we plead and demand that they provide their graduates with greater abilities to be resourceful and inventive teachers, we maintain our inherited love of classification and categorization which does much to stifle originality by those graduates when

they become teachers. If Community Colleges are grown up enough to attempt emasculation of the universities, then we certainly should be grown up enough to stop teaching exactly the same courses taught in the universities. One of the greatest boons to innovation in the Community Colleges would be the acceptance by all concerned that four semesters of college work is enough to earn for the student an Associate Degree and third year standing in the university, regardless of the courses taken, the sequence in which they were taken, or the school in which they were taught.

If the administrators of Community Colleges and the associations to which they belong were to demand that universities accept their students' degrees instead of their courses, the quality of Community College education would soar. If they would articulate that demand instead of their offerings, we would not only restore meaning to a perfectly good word, but we would also take a major step in convincing the Community College teacher that his teaching has value in itself instead of value as aprerequisite for the real course to be taught later, elsewhere.

Each of these modifications in the academic structure is part of the preparation for the most important ingredient of an innovative department--a group of teachers who are confident that they are the most important ingredient. They must know that they are joining a department and a school in which the administration is constantly alert to make whatever changes are necessary to accomodate excellent teaching.

Gathering a department of potentially effective teachers and showing them that they are indeed a very special group of people will accomplish nothing unless the administration, both academic and non-academic, is willing to respond in good faith by allowing them the freedom to teach. The freedom to teach is a much more profound concept than academic freedom because it contains an implicit definition of the role of the person claiming the freedom. He is a teacher. Academic freedom, precious though it is, merely insures that the classroom is a sanctuary for whatever views students and teachers may want to express. It is a freedom of expression, not necessarily of teaching. The English teacher in a Community College must have the assurance of freedom to teach because he must think of himself as an artist, not a technician. Academically, the difference between the two is profound.

The main difference between an artist and a technician is the method of creation initiated by the two. An artist has his own style, even if it is similar to someone else's, and a technician has to learn a procedure so precisely consecutive that it often is ritualized. The artist must determine at each step in the process how he can best proceed to the next; he even must decide what the next step in the process is to be. The technician may very well create a work of art, but he does so by following a prescribed procedure, a procedure he may have established, but a procedure which could be followed by anyone with either the ability to read the instruction sheet of to remember the steps. An artist can perform as a technician is not, necessarily, imaginative or innovative enough to be an artist.

Once the distinction between teacher-as-artist and teacher-as-technician has been made, the full implication of "freedom to teach" can be realized. It means that the teacher is guaranteed the right to teach according to his own definition of the act of teaching. It means that the role of the administrator is administra-

tion rather than supervision. A realignment of roles few administrators (and even fewer experienced teachers) are willing to make,this demonstration of faith in the talent of the teachers is crucial to innovation in teaching; in fact, it is crucial to teaching. Classes will still be met by teachers who are not granted this freedom, but the creativity which makes teaching an art will be dampened, the process will be ritualized, and the joy of teaching, and learning, will be lost.

It has been our experience that teachers who are teaching for the first time require a semester to accept the responsibility of this dreadful freedom; those who have taught elesewhere require somewhat longer. The experienced teachers, when given the opportunity to teach whatever they want however they think best, invariably take the safe route and teach what they taught in their previous position. Suspicious that they are somehow being tested, they teach as carefully and thoroughly as they possibly can. The new teacher, obviously, is simply bewildered. He doesn't know how to teach, he doesn't know much about the subject he is teaching if he is teaching composition, and he is not even sure why anyone should be asked to take an English course, especially his. In anticipation of the uneasy caution of the one group and the despondent floundering of the other, two things must be done to insure their metamorphosis into the teachers they can be.

The first of these is an extension of the act of faith required of the administration of the school. The teacher must be assured that his job is secure, that he has the right to fail. He must know that he is not going to be trapped by his own inventiveness if the results are judged not satisfactory by some supervisor. If the fear of losing the job is eliminated, the question that a teacher asks of anything new he might be contemplating is no longer, "What will happen to me if this doesn't work?" The question becomes, "Will this technique accomplish the course goal?" or, paraphrased, "Will the students learn more or better if I teach this way?" I will have more to say later about the significance of this change of attitude, but it is sufficient to say here that the teacher must work in an atmosphere completely free of fear.

He must also be afforded an atmosphere free of the indignities which result from an administration which will place any other motive ahead of excellent teaching. It is especially disheartening to those of us who fled administration-dominated colleges to a school which trumpeted excellent teaching as its first premise when they find the same attitudes and practices, mitigated only by the lack of experience of the administrators.

The second necessity in the establishment of the atmosphere required for people to become teachers is to provide a time for them to talk about teaching. At sessions of all teachers of a particular course, teachers have the opportunity to describe what they are doing in class and evaluate the results. Others must have the right to question to criticize and, if desired, to adopt. Here, in the course seminar, all the conditions I have talked about before must be present. The teachers must be bold enough to say that something they tried to do failed. By the same faith, they must be frank enough to say that something a colleague is doing is inherently faulty.

The value of the course seminars depends entirely on the teachers' honesty, and that honesty depends on the assurance they have that the seminar is not a measuring device but a learning one. They will think of it as a measuring session if they think of themselves as technicians who can be graded on their relative ability to

perform the prescribed tasks. If, however, the administrators have convinced the teachers that they are artists, eith all the uniqueness that implies, they will see these sessions as steps in the establishing of a personal style of teaching. Free from the fear of being graded and compared, the teachers are able to concentrate on the relation of what they are teaching to what their students are learning.

If there were no other value in a course seminar than the improvement of methods, it would be a necessary part of any department. It has, however, a much more significant possibility. If the discussions in the seminar can transcend the level of an organized gripe and gossip session, the teachers will be required to justify their methods philosophically. In this justification comes the teacher's crucial step toward innovation: the examination and definition of the assumptions which, combined, are the basis of all his academic and pedagogic thinking. The questioning may bring forth an immediate answer or it may create more questions. The teacher may have a problem which has been solved by one of his colleagues or he may have one which has not been solved by anyone in the profession. Whichever the case, the questioning process is accelerated by the honest discussion in the course seminar. Obviously, so is the answering process.

Just as important as the development of each teacher's philosophy of teaching, the immediate effect of the course seminar is to improve the teaching at the time. Each teacher is constantly examining the technique and subject matter he is using. If his course is working, that is, if the students are learning as he expected them to, he has to examine it to determine what about it is making it work. If, for some reason, his plan is not working, he has to determine what about it is faulty. If he cannot recognize the reason for failure of what he considered a great idea, he knows that he has a sympathetic forum in which he can ask someone to identify the cause of failure. He is not beholden to accept any of the answers, but the point is that he will have the advantage of objective perspective from persons who are involved in a similar situation.

Perhaps you have already identified a shift in responsibility in the system I am describing. The teacher rather than the student is the reason for the success or failure of a class. He has the advantage of a forum of sympathetic advisers--his colleagues--and he has the psychological advantage of knowing that there is no relation between his successes and failures and the job he holds. His job is to put the students into a situation in which they express themselves with the greatest intelligence and fluency possible. The way he does this matters not one iota; he must discover as quickly and easily as possible how he can provide that situation. If he cannot, he has not yet discovered his style. We will not allow the facile excuse that the students aren't capable.

It is extremely difficult to shake off that particular excuse for poor teaching. Our entire educational establishment is predicated on the notion that education and the ability to learn are reserved for an elite few. Granted that we are in the process of increasing the size of that elite, but we are slow in accepting the idea that the reason that we have an academic elite is because we think one exists. I don't propose that teachefs should be flagellants of some sort of scapegoats for the failures of the society. I propose only that we establish as a first premise that each student in a class has some latent capability to compfehend and to express himself, and it is the function of the teacher to discover and exploit and develop that capability to the fullest extent possible.

Earlier, I said that teachers in a Community College English Department should

be hired on the strength of their intelligence and their compassion. It is this compassion for students that provides the bridge from the teacher's acceptance of the freedom to teach to his personal relationship with his students. Almost every teacher will provide his students with the same personalized treatment which has been granted him as a teacher. The similarity of opportunity for personal development is lost in only a few, usually those who are unwilling to trust their own aristry.

Students are as reluctant to drop their academic defenses as teachers are. They have been trained very carefully for at least twelve years to recognize their deficiencies and to develop compensations and excuses for what they consider their inabilities. More important than the excuses, though, students bring with them a complete set of methods they can use to avoid learning anything. Cajoling the students into exposing their weaknesses to the teacher, the contradiction of all they have learned, is not only the greatest innovation of all, it is the essence of teaching.

Obviously, not every student is going to trust the teacher enough to drop his defenses; most students have been burned enough times in the past to make them wary of teachers who say they are more interested in individual learning than they are in grading. But the possibility of establishing this necessary rapport between the teacher and the individual students in the class is going to be much easier if the teacher does not envision himself as the antagonist who must either be placated or circumvented if the students are to take the next step on the academic ladder. Students expect this attitude of academic elitism, and many of them will resist every effort the teacher makes to eliminate it. The teacher cannot be faulted if he doesn't achieve personal rapport with every student in his class; that goal is established to point the direction of endeavor and to be the symbol of success.

As teachers discover more ways of dealing with students personally and as the students come to recognize their English classes as places where they are encouraged to apply what they know and what they are to their interpretation of what they read, talk about, or write, the relevance of comparisons diminishes. When the coldness and aloofness of a completely prescriptive academic procedure are eliminated, the means of recording relative success in that procedure, grades, become unimportant. Many teachers, in fact, assign only a course grade, and that only because it is demanded by the educational conventions of passing, graduating, and transferring. As in many situations in which the symbol has become confused with its referent, elimination of grades has diminished much of the anguish about the situation for which grades were invented to symbolize.

Although a very real achievement, the elimination of grades from the teaching situation is only the elimination of a symbolic act. Discarding grades without discarding the system they symbolize is as silly as the reliance on their validity presently accepted by all parts of our society. What is really important to eliminate is the hostile relationship which presently exists between students and teachers. The teacher who has the freedom to introduce any subject matter or technique at any time has the greatest possible chance of breaking down this hostility.

A teacher who is able to deal with students honestly and personally will usually receive from them in return honest and personal expressions instead of the views they think will be acceptable to the teacher. As the student and the teacher work together to find ways to make the student's expression as complete and precise as possible, the student will recognize that he indeed does have opinions which he can express. This may seem to be a very rudimentary discovery, but it is important

beyond measurement to a student who has been convinced otherwise. That student, more than any other type, is the student who attends a Community College.

What I have described as a theory for encouraging innovation in a Community College English department is the emerging theory on which our department at Community College of Philadelphia is based. It doesn't work all the time, for some people are not willing to accept the freedom we demand they accept. Some are not honest enough to divest themselves of the concepts of teaching and learning they picked up as students. Some do not believe that the Community College teacher must be a different teacher than his university counterpart and try to teach as if they were at the university. Some, because we are close to several graduate schools, are willing to commit themselves only long enough to get the degree required to join the mystical brotherhood. These are the failures, but being failures they do as much as is traditionally expected of teachers. Like a fingerling trout, they will be thrown back into the stream until they either grow up or are caught by someone else who is more concerned about having caught a trout than about his size.

Those who are willing to make the commitment, and they are the majority, are in various stages of becoming artists. Their students learn, but even more improtant, their students <u>are</u>.

COMMUNITY RELATIONS: A PRACTICAL APPROACH

By Ronald J. Horvath
Leigh County Community College

A re-statement of the VISTA slogan might provide a theme around which this presentation, "Community Relations: A Practical Approach," might revolve. VISTA challenges onlookers with, "If you're not part of the solution, you're part of the problem."

Although this antipodal approach might be overstated, the communication gap can be attacked from a problem-solution point of view. We can, perhaps, measure the degree to which all members of the college family are, or are not, willing to become part of either the problem or the solution.

Stating a few basic assumptions concerning community relations is essential to this introduction:

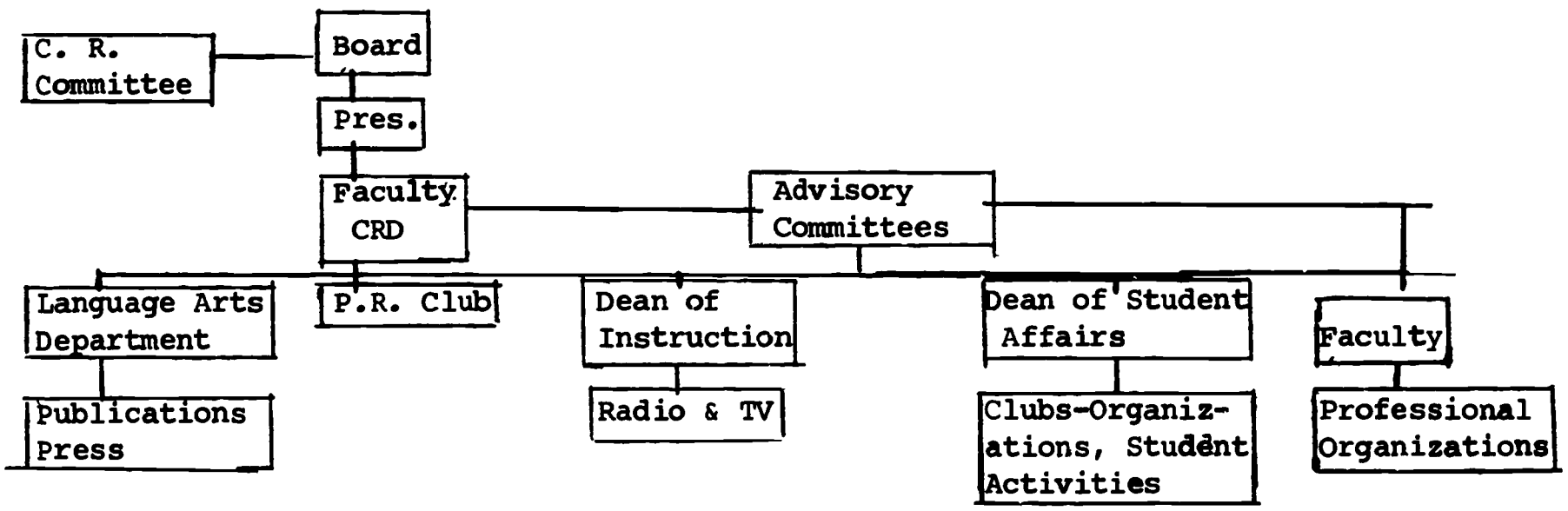
1. External communication is vital if our community/junior colleges are to achieve the viability of which they are capable.

2. Because practically all junior/community colleges rely on external sources for funding, keeping these external sources informed is both necessary and expected.

3. Positive community relations can be established if someone is willing to expend time and energy in laying out avenues of communication and then keeping those avenues filled with information.

These three assumptions, then, must underlie this presentation if we are to outline an approach to enchance our image and prestige and to secure the support necessary to the continued economic health of the institution.

Most colleges have a framework which outlines how a community relations program will operate-duties and responsibilities of the community relations officer, the importance of the function being performed, and the liaison which he is to extablish between the community college and the community at large. If your institution does not have a plan, here is a suggested approach. (Step 1):



Although this is only an organizational chart, it is a necessary tool if the college family is to understand its separate and shared responsibilities. The Community Relations Director must have access to information before he can disseminate it. The flow chart provides the plan for amassing information.

Realistically, few community/junior colleges have financial resources to support a full-time public relations or community relations director. Most colleges in a developmental or adolescent stage use a faculty member or administrative officer to handle the CR in addition to his other full-time duties. If either you or your college fits into this category, then these suggestions are aimed at you specifically.

In selecting an individual to act as CR director, locate a person with one fundamental characteristic--a dedication to the college and a belief in the mission of the institution. In effect, he is one who would rather be a solver of the problem than part of the problem itself. If he has a talent for writing, if he is granted a reduction of other duties, or if he is reimbursed for his effort--excellent. If he does not receive any or all of these three considerations, he must, as mentioned previously, be dedicated to the institution or, as Ernest Hemingway would phrase it, an "aficionado." He is Step 2 in the solution. With a concerned director already chosen, Step 3 of the solution involves the faculty and the students.

Contrary to popular opinion, Boards of Trustees do not invest individuals with power. These august bodies invest only with office; the power that individuals within the college amass is drawn from the faculty and students. The CR director can solicit aid from faculty members by pointing out to them that most faculty complaints have their origin in economics. If a favorable picture of the institution can be presented to those who are outside the college--in effect, those who have their fingers on the college purse strings-- positive results can be obtained, or, at the very least, distorted views of the institution can be corrected. In essence, the appeal to the faculty is where it is most sensitive--in the wallet. This appeal can best be handled in informal conversation. A formal presentation at a faculty meeting can meet with resistance; a letter or memo is often unread. This personal contact is necessary and helpful. The faculty can and should provide the information; the CR director should disseminate it.

Students can be the turning point of any successful CR venture. They are the very best salesmen that the college has. A pool where all these latent resources can be accumulated, amassed, and unleashed is all that is needed. Get them involved in solutions to the college's problems. As a fourth step, form a community relations club or committee; outline your program to the group; solicit student help. If we are to believe what the media tell us--that the students want to be involved, that they want a part in the operations of a school, that they want to be heard--then we can provide a vehicle by which they can contribute positively and meaningfully to the institution. Believe me, students don't want to be a part of the problem; they want desperately to be a part of the solution. Make the students a part of, do not keep them apart from!

What in particular can the students do to help in CR? Specifically, let me mention these areas: first, they can serve for liaison between the college and their high schools. Each student has his own favorite teacher in high school--someone who has helped him, someone with whom he communicates at least occasionally. This one contact in a local high school can be the starting point for a series of chain reactions--visits, talks, working relationships, etc. Let students go out and speak to their high school friends, let them address club meetings, assemblies and classes. We talk

about peer group power, let's use it! You provide the machinery (Step 5); encourage the students to do the leg work.

How does the CR director provide that machinery? One way is to visit the Superintendents of Schools in the area, the principals, the club directors, the guidance counselors and the faculty members in the high schools. Indicate that the college is willing to send either student or faculty representatives to help in any way that the high school would so desire. If the district needs help in planning an in-service training program, the college can help. If the school club program needs a speaker for an occasion, the students are willing. These are some ways that the CR director can provide the machinery.

If a personal visit is impossible, perhaps a letter similar to this sample might do the job:

Dear Sir:

Leigh County Community College would like to offer its services to your activities program.

The college will furnish upon requiest, speakers for club meetings, assemblies, or guidance programs. Speakers will be drawn from administration, faculty, and the student body.

Some areas in which the college can offer assistance are:

Technical-Vocational	Academic Areas	Student Personnel
Nursing	Social Science	Guidance
Chemistry	Language Arts	Testing
Electronics	Business	Admissions
Data Processing	Mathematics	
Food Service	Science	General
Mechanical Tech.		
Secretarial Science		Community College Philosophy-Aims and Objectives
Apparel Manufacturing		
Business Management		
Police Science		

Requests for aides can be addressed to:

Ronald J. Horvath
Community Relations Officer
Lehigh County Community College
Schnecksville, Pennsylvania

Thank you for your cooperation and do not hesitate to call upon the college.

Sincerely yours,

Ronald J. Horvath

Mail the letter to all school officials--superintendents, principals, counselors, club sdvisers, and faculty. Even if a request is never made, at the very least, your community knows that the college is willing to be of assistance, that the institution is cognizant of the needs of the schools, and that the college does not exist in a vacuum. Other areas in which the student-based Community Relations Committee can be helpful are:

1. Tour guide service for all visitors to the campus.

2. Aides for formal ceremonies such as open house, cornerstone setting, or building dedication.

3. News gatherers from other clubs and organizations within the college.

4. Ties with business and industries where the students' parents might work, or clubs and organizations to which the students' parents might belong.

If you haven't tapped student power, give it a try! The CR director should direct; the students are, and should be the problem solvers.

Let me turn to step 6 of practical community relations; personal contact with advisory committees, chamber of commerce, service clubs, and important citizens. Organizing a speaker's bureau from within the faculty, publishing a list of speakers and thier topics, sending out brochures, and setting up speaking dates are relly ideals. Getting faculty members to commit themselves voluntarily to a topic is most difficult.

Unexplainably, most faculty members do not see themselves as public speakers. My recommendation is that you make contacts with those groups who utilize speakers and make a commitment for a date and a speaker--then go after the faculty members you know will represent the college well. Only a few will turn you down once you have made the commitment. Not everyone will be accommodating, but those who volunteer are willing to be a part of the solution and not the problem. Again, making the speaking commitment, then seek out the talent.

Step 7 might involve contacting your local radio and television stations to offer your services and the services of the college to fill any time slots on a regular basis. We have a seven minute Sunday evening radio program donated by WSAN entitled "Community Education: The Vantage Point." The program features a different facet of the college every week. A student who worked at the station provided the contact through which the college received free air time. A student from the Community Relations Committee is the moderator.

The last practical suggestion I would like put forth involves mailing lists and news releases. All else aside, a regularly received stuffed envelope from the college says one thing to the recipient--things are happening at your school; why not read me and become informed. The mailing might include the following:

1. The faculty and staff of the college.

2. The college Board of Trustees.

3. The Board of Governors, education committee, or the entire membership of the local chamber of commerce.

4. School boards in the area.

5. District, state and national senators and representatives.

6. All newspapers in the area, wheter they be a daily, weekly or monthly.

7. All radio and television stations.

Do not decide what is newsworthy and what is not. Allow these outside sources to make the decisions. You send the material. Demonstrate visually to these groups that the college, itself, is willing to be a partner to solutions. Do not permit your institution to sit on its academic haunches and be a STRUCT--E. Because what is missing from that word is exactly the combination that can help the college, the community, the state, and the nation solve its problems.

LIBERAL STUDIES IN TECHNICAL EDUCATION: HOW BRITISH INSTITUTIONS MAKE THEM RELEVANT

By Russell N. DeVinney
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One of the American tourist's reactions to Great Britain is the immediately recognized preciseness of not only the countryside, but of the prople as well: hedgegrows extending over hills; fences separating, lining--containing the acreage; the family with one boy, one girl--the desired containment!

But then what interests, amuses, and at tines frustrates the American viewing the British educational scens is the absence of the definitive. He asks to see syllabi or a prospectus. This inquiry, based on his need for specificity, is likely to get the following response: "Let's not be in a hurry to define. Definitions and the desire for definitions split Christedom into fragments in its early days, and it has not recovered yet!"

So it goes with British technical education, an innovation (or "amelioration!" as a Socialist Party member of Parliament put it) that greatly emerged out of the second world war in the form of evening classes. Returning servicemen enrolled in these courses that were conducted in converted war plants, factories, and social halls. The schools began similarly to our community colleges in that local township authority instituted their being and financially support their operation. The difference in the two institutions, however, is in the relationship established and maintained between the college and business or industry. The British technical college maintains a very central, involved, and integral part of the local scene; whereas the American community college is more often than not a point of interest or one of the chamber of commerce reasons for "setting" in Mjdville! Periodically there will be gestures made between enlightened people and the college in the form of pilot programs or continuing education, but nothing similar to the cohesion in what the British call the "sandwich course" (six months working with the Pennsylvania Power and Light Company and six months at the Northampton County Community College, studying for a diploma in electrical engineering) or "day release" (one day a work week away from Hess Brothers or the Renee Beauty Salon spent at the Lehigh County Community College studying merchandising or hair dressing).

Who goes where and does what in British education is still largely determined by the "11-plus" examination, a kind of intelligence test taken by children who are eleven before September 2nd in the educational year following the examination. About twenty per cent of those taking the exam go on to the university. Of the remainder seeking "further" education, twenty per cent enroll in the institutes of technology in preparation for engineering careers similar to the American baccalaureate counterpart, except that the individual is limited in that he will find no doors open to the managerial experience. The technical colleges prepare the bulk of the remaining students seeking academic preparation for careers as technicians and craftsmen.

In the technical colleges, there is a wide variety of programs, encompassing everything from what we would consider vocational and technical training to engineering and the liberal arts.

They do not have in their general education (which amounts to about ten per

cent of their total class time) a specific course in literature, sociology or history. Instead there is the "liveral studies" approach.

As for the teaching of English (as we know it in American freshman and sophomore undergraduate programs) ther are no formal courses. This policy, however, is not true in all of the technical colleges and institutes. But those institutions visited revealed no specific rationale, syllabi or sequentially arranged study. There are several explanations why it is not taught singularly as a subject, the main one being that if a student has not mastered his native tongue by the time he gets to the college, he is not likely to do so then.

What work is done (i.e. oral and written "projects"), the liberal studies department (in each technical college and institute) accomplishes with its staff of people representing various professional areas of the community such as art, business, law commerce, and the church. These teachers accept as their mission the need for student understanding of the relationships between all subjects in order to bring out the application of knowledge to human activity. It is felt that too long the text book has dominated the classroom, done the teacher's thinking and work for him, and by external examinations, laid down the pattern of his work. There is an attempt to consider written English in the context of the spoken word, to see English linked to other "subjects" in the curriculum and supported by other forms of communication such as TV and films.

In short, the British approach appears to involve the subjective: getting the student to explore his own experience, understand himself, and bring order to his self-definition. The emphasis, then, is not on subject matter; not the cognitive, step-by-step, American approach. Rather is it on the development of the student, his needs, and how he differs from others in society.

The liveral studies staff appear to be in agreement that they must aim to show relationships between all subjects and bring out the application of knowledge to human society.

Specifically stated, these teachers have as their goals:

1. to help the student to think logically and independently, to recognize prejudice, and to develop tolerance and understanding of another's point of view.

2. to help the student express his ideas effectively in speech and writing.

3. to help the student realize that his future rests on the fullest and freest development of his personality, education, skill, and adaptability.

4. to help the student understand the world he lives in and become aware of his rights and duties in society.

5. to develop the student's aesthetic interests and encourage him to make use of opportunities of leisure.

In practice, liberal studies staff draw material from the whole of the students' environment: such subject matter of a kind which will evoke reactions--feeling as

well as thought. The British teacher is, in part, concerned with the ordering the student's experience, but feeling and imagination are primary concern.

In the technical college and institute, the instructor believes that mechanical accuracy in the writing of English will come or will not come with maturity, and there is little the teacher or text book can do about it. He also believes that it is unlikely that a teacher can hope to improve by any formal means the standard of written English in groups of students whose average age is 19 or 20.

The contrast then between the two systems is quite pronounced. In place of the American formal approach to the classroom experience is British informality. Instead of the cognitive, structured, step-by-step approach, the British course has as its basis, an emotional appeal to the imagination, resulting in an almost spontaneous "happening".

A brief explanation of the nature and kinds of faculty representative of the liberal studies department will, perhaps, reveal that this educational experience in actuality is not as chaotic as it may appear on the surface.

The team approach is used in which "specialists" work together to promote the balanced development of the technical college student's personality. Consequently, there are lecturers representing the humanities, the special sciences, and even religious faiths. The team of specialists takes as its rationale what Bratchell and Heald have to say in The Aims and Organization of Liberal Studies (New York: Pergamon Press, 1966):

> "The graduate of a technical college or institute is a responsible member of a complex society which is being continously and often profoundly changed by him; and he is also an individual human being. At all three levels he has to grapple with a multitude of problems, human, social, and moral as well as technical, confronting him in a period of change more rapid and far-reaching than Man has ever known."

These specialists have a variety of techniques, but to this observer, they can be grouped into four:

FIRST, there is what might be called the opportunist. He is the one who uses topical affairs to stimulate thinking, reading, writing; e.g. Vietnam, the situation in northern Ireland or even an aircraft crashing at Heathrow (London) airport. He may also attempt to attach education to an immediate interest such as motor bikes or the Beatles.

SECOND, there is the social studies approach taken by the specialists who are economists, sociologists, etc. They attempt to get their students involved in some kind of social activity, such as helping old folk or conducting social surveys or analyzing traffic patterns. Here, again, a project in the form of an oral or written report may be the student's obligation.

The THIRD is made by those who believe the aesthetic approach is right, that really the important thing in life is literature or music or sculpture or painting or all of these. Some may work through literature, many through music because of its place on the current scene. And for an obvious reason: they are the most easily available! Students, in this instance, may produce a ceramic tile, a film, compose music, etc.

Lagging behind is the FOURTH specialist, the language teacher. These are the people who try to do remedial work in terms of English. On the whole they are rather a depressed group of people because they are attempting to do a very difficult job with students whose resistance is very high. Some of these teachers have become quite hardened, determined, and effective, but some of them get cynical about it. This group is definitely in the minority, at least in the author's observation. And yet to the administrators, many of whom have engineering backgrounds, the language approach should be foremost.

At one technical college, the vice-principal, a mechanical engineer, had this to say:

> "Professor DeVinney's inquiry into the teaching of English to engineering students in this college has rather indicated a weakness in our general studies set-up in that they tend to shy away from this problem. He has visited certain other technal colleges who are prepared to tackle, indeed they may even examine, the subject of English."

An interesting, contrapuntal statement made by the assistant head of liberal studies at the same College was:

> "We are having a ding-dong battle regarding the inclusion of liberal studies in the technical programs. We are making the point, of course, that they (the students) need more general studies. We're interested in what kind of surveyors, what kind of professional people, what kind of citizens these boys and girls are going to be ten years from now. We are not particularly interested in their preparation for an immediate job."

The following is a brief selection of assignments made by liberal studies faculty at the technical colleges of Newark, Bristol, and Bolton. The reader will note that as subject matter, they all involve some form of composition as the medium of expression. To a college teacher of English they have appeal, as well as relevancy to today's world, and since it is elementary to the success of any class room experience, the student must be motivated to respond to the given stimuli. The generation of thought elicited by these assignments was a singular event, now being repeated in an American class room.

=Instead of the conventional assignment of autobiography, producing school-type essays, stilted in construction and usually saying the things the student thinks the teacher wants to hear, the invitation to write down the first thoughts that come into the student's mind on hearing the word, "school".

=A story, carefully chosen, is read to the group by the lecturer who stops at a point of conflict and tension and then invites the students to complete the story for themselves.

=By happenstance was the lecturer able to conceive this assignment. The college sat in the midst of a great deal of demolition. From its windows high above the city, a sea of brick fields, new foundations and crumbling slum houses drifted into the distance, and here and there vast new blocks of concrete and glass rose into the sky. The city changes day by day. The asignment is to capture that change.

FIRST, in a piece of prose which in the manner of an artist's sketch was intended

to express the sight, sound, and smell of the city: the immediacy of personal experience.

The SECOND task was to create a poem based upon the prose sketch.

The result was a contrast between the two communicative approaches: it was immediately noticeable how much more vividly students managed to convey their thoughts in the poem rather than the prose piece.

An engineering technician student wrote the following:

"From the college, instead of the old sea of grimy tenements,
we now see a mire of mud and bridges, concrete foundations, cranes,
and bull dozers, and out of the holes and mudbeds must rise the
towers of the future."

Reasonably straightforward ideas, well expressed. The poem, on the other hand, says something quite different:

"The dirt, the filth of the city has gone,
To be replaced by sterile mud and earth.
And out of this arises the automation
Which will one day devour all its parasites.
This year it is not fire but power that kills.
But next, who knows?"

The following is a random sampling of topics primarily intended to stimulate the student to composition.

=Whatever we say about our modern cities and their masses of aimless or gawking people, there is something warm and vital about crowds of shoppers--in their midst you feel humanity wash over you.

= You have only to look at a sea-gull to realize that what is efficient for its purpose must also be beautiful;

=If I smuggle a bottle of brandy through Customs I gain and nobody suffers; so why shouldn't I?

="I would there were no age between sixteen
And three and twenty,
Or that youth would sleep out the rest;
For there is nothing in the between
But getting wenches with child,
Wronging ancientry, stealing, and fighting."

- The Winter's Tale (Act III, Scene 3)

One of the most interesting observations of the British liberal studies approch occurred when a group of apprentices (day release) were taken to an exhibition of paintings by war artists at a local gallery and asked to record the immediacy of feeling in note from on the spot, producing a poem based upon the notes in the classroom later.

The results were an astonishing crop of anti-war poetry.

Subsequent assignments included exhibitions of modern art and art produced by concentration camp victims.

Apparent in such an exercise is the fact that the assignment must include two basic essentials; immediacy of feeling and close personal involvement of the individual. A wide variety of potential experiences open up in this area: a court room or police "desk", a meeting of township supervisors, a brief "listen" to a radio "talk-in" show, etc.

The liveral studies lecturer who conceived this project commented:

> "It is surely not too much to hope that the student will be a better technician or craftsman for having discovered within himself a creative ability he never knew existed. Surely any technique which enables the individual, whatever his chosen profession, to discover himself and his latent creative ability, is not only worthwhile, but essential if the sort of changes we all wish to see in our society are to come about."

In the final analysis, the success of the British liberal studies approach rests with the teacher. He is not confined by syllabi, highly structured courses, examination-based studies. For the effective teacher this climate is pleasant, stimulating, and conducive to innovation and experiment. However, to the less qualified, less excellent teacher, he may very well receive this overhead comment:

"What the bloody hell was that all about?"

"RESIDENT" GRADUATE STUDENT ON THE JUNIOR COLLEGE CAMPUS

By Karl O. Neuroth
Keystone Junior College

This program was conceived as a means to enrich the junior college campus environment with the presence of a proffessional artist in adjunct to its art program. However, since there are graduate students in all endeavors and all kinds of undergraduates can benefit from broadened exposure, I see no reason why the program could not be adapted to suit the needs of any individual discipline or school.

Our junior college, Keystone, is located about 15 miles north of Scranton, Pennsylvania. There is a definite lack of opportunity for the kind of exposure to cultureal influences that a more metropolitan area can provide. In an effort to fill this gap, the school had, in the past, brought on campus speakers who were knowledgeable in art--sculptors, painters, potters--all people with professional background and active in their fields. Although it was felt that this was good contact for the students, a better plan, I felt, one that had been used elsewhere with success, would be for the artist to live on campus for at least a week to see and talk with students in all kinds of situations.

And since, in the junior college situation, we feel the lack of third and fourth year students who might take on roles of leadership, I felt that our students might relate more quickly and easily to a person near their own age, and still in the process of formal education. A graduate student, carefully selected, seemed the best solution to fit these needs. Such a person would, by this stage in his career, have achieved some real measure of skill in his discipline--in this case, painting--but would also still be involved in some of the rigors of a college education that our students are.

A primary goal of the program, then, was to provide a person whom our students could relate to easily, and who could discuss with them, not only art, but problems which they all are facing--especially those related to the completion of their education. I feel strongly that our junior college students need this kind of relationship. Often, because of the two-year nature of our school, they feel isolated--not part of the four-year college scene. It is a constant concern to them as to where they will go after Keystone. So anything we can do to make the transition easier for them is certainly worthwhile.

But let me tell you about how the progam worked. It consisted of bringing on campus, for a full week, a graduate student in painting from a university art school with a very sound professional reputation. He lived just off campus, took his meals in the college dining hall, and spent every day (and nearly every evening) with students in some scheduled or casual way. There were five major parts to the program.

The first part was a one-man show of his paintings in the college library. It was installed the first day he came on campus and students helped arrange the show under his guidance. He also taped comments about particular works in the show and this "walking lecture" was available on portable recorders which students could sign out for at the circulation desk.

This dual kind of communication, together with the facts that many students had

already worked with him setting up the show, and that he was ther--available, all the time--soon made it easy for students to overcome natural inhibitions and begin to talk about the paintings.

I should say, at this point, that we do not have an art major program at Keystone. We offer only a few basic courses in drawing, painting, sculpture and art appreciation. So these beginning students asked very naive and fundamental questions about what painting is all about, why the artist paints as he does, and the like. Here the advantage of our painter being also a student was quickly apparent. He answered their questions with understanding and patience.

The second major part of the scheduled program was a general college convocation lecture in which the graduate student showed slides of his own work and the work of people who had influenced his style. This was followed by a seminar in which the artist talked further to those students who were interested. The combination of the artist's work in the library, the slides shown during the lecture, and the seminar discussion made it possible for students to correlate otherwise isolated bits of information and find the confidence to talk to the artist about their reactions to what they had seen and heard.

The third part of the program was the graduate student's scheduled involvement with individual art history and studio classes. I had spent some time with him, prior to his campus arrival, going over the planned schedule and, at that time, we decided where he might best fit into the class plan. A particular lecture on the Renaissance which I was about to give tied in with some of his theories about how his own painting was based on the same traditions as Renaissance painting. He discussed this with the class. The studio classes were going along at their own pace by this time, so we decided to have him come in and review and have a critique of the student work to that point. In addition to these involvements which were mapped out in advance, he was also available during other class times to sit with the students, make comments and suggestions, ask questions, and generally become an informal part of the teaching situation.

Part four of the program was a presentation to and discussion with a large group of local high school students who were on campus for a college-sponsored Career Day. Our artist talked to them about the requirements for and nature of careers in the visual arts, and especially about graduate school as he saw it and about his own particular discipline. The students were very enthusiastic, were able to relate to the young man immediately, and appreciated what he had to tell them.

The last part of the scheduled program was an evening painting demonstration, during which the artist showed his own personal approach to the making of a painting. Besides enumerating the many considerations of the artist as to the choice of subject, composition, color and so on, he also discussed his personal philosophy of painting. This demonstration was open not only to college students, but to faculty and interested members of the community.

In addition to this, the scheduled program, as many opportunities as possible were taken to introduce and foster discussion between the artist and as many people as possible. He was honored at a factuly tea, where he met most of the faculty and administration and their wives. He was entertained locally and met the few local artists of note. He was engaged in the discussion of his work almost constantly by one group or another.

The artist was aware, of course, that he was expected to work with the students and to get to know them and they him as quickly as possible. And so, he made himself available. He was around the studio much of the day, and in the library often. He was in the student center at various times during the week, and, of course, ate with the students. Soon there was a group who really sought him out and he spent much time with them talking about anything that interested them.

And now to the cost of the program. Actually, it was very moderate and altogether came to less than the cost of a one-hour lecture by a competent speaker. The college also purchased a drawing by the artist for its permanent collection. The total amount came to just a bit over $500. This included room and board for the student, traveling expenses for him and his work, a stipend for his services while on campus, as well as the purchase price of the drawing. All in all--a bargain!

Perhaps best of all, the program required no vast upheaval of faculty, administrative schedules or traditions. A good deal of pre-planning was necessary, but once in progress, everything went very smoothly.

There were a number of unexpected but welcom "bonuses" to the program. Lines of communication were opened on many levels besides the obvious ones between artist and students. The entire college community was exposed to and many individuals became involved with the ideas which the art of today is trying to express. Communication between the university and the junior college began, of course, and the university, always looking for innovative programs in which their people can be placed, was quite interested in the program. Hopefully, Keystone's reputation was enhanced in the process.

Another unexpected result was the kind of learning experience the program became for me, the art instructor. I found myself looking over the shoulder of a very contemporary young man and learning a great deal about the teaching philosophy and attitudes in the art field at the moment. This can be invaluable for the teacher years removed from his own student days and feeling geographically and perhaps philosophically "out of touch."

Finally, the program was of great value to the graduate student sent to us. Certainly the joint experiences of a one-man show together with varied opportunities to demonstrate and teach are invaluable to the prospective artist-teacher. This particular student was glowing in his praise for the opportunities abounding in the program.

Another possible application of the program, which has since occured to me, is that it could serve as an in-dept way of testing potential teachers for the sponsoring junior college. Certainly, in a week's time, there is ample opportunity to get to know the individual in significant ways without the pressures usually associated with the interviewing of teaching candidates.

In evaluating the entire venture, I was pleased with the results, and consider that the program was success. Certainly the young man involved was! Every one was most impressed with him, his paintings, his seriousness, intelligence, and maturity. The students "dug" him, for he is of their generation and speaks their language. It was surely on this intimate, person-to-person level that the program was most successful. This result was due largely to the very careful choice of artist-student. This aspect of preparation can certainly not be overemphasized!

The general success of the program is borne out by the fact that we intend to repeat it this year. Although there will be some changes, generally the program will be the same. Perhaps the least successful part was the general college convocation. Thinking back upon this, I realize that is is difficult for anyone, unless very experienced as a speaker, to engage and hold the interest of an entire student body with all the diverse interests and lack of interest expressed in such a group. So I think that next time we will forego the convocation lecture and the artist's participation with students in disciplines other than art will take the form of individual class visitation. This will have to be worked out with other faculty members, of course, but I can see possibilities for a good exchange of ideas in the showing of slides in many different classes and the discussions that could be forthcoming of their relationship to drama, literature, history, biology, or whatever else the class is studying.

I think that the importance of this kind of interdisciplinary discussion and exchange of ideas cannot be overemphasized. In a world steadily growing smaller and ever more integrated, in every sense of that word, this kind of idea exchange is utterly necessary to the student who will be living in that ever--shrinking and shifting environment.

Tomorrow's citizen must be able to feel at home with all kinds of divergent approaches, ideas, and philosophies, and to have been exposed to enough different things to be able to make some sense out of what could seem intellectual chaos.

It is our hope at Keystone that programs like this one will have apart in helping to prepare our students for such a future!

DOES FINANCIAL AID HELP? A STUDY OF THE EFFECTIVNESS OF FINANCIAL ASSISTANCE TO STUDENTS AT HARRISBURG AREA COMMUNITY COLLEGE

By Fred A Snyder & Ruth B. Klein
Harrisburg Area Community College

Amounts of financial assistance available to college students have increased considerably during the past decade. Administrators of student financial aid programs are increasingly challenged by large increases in the student population, rising educational costs, fluctuations in government-supported programs, and questions concerning the purpose and effectiveness of financial aid programs.

A brief review of the literature regarding financial assistance to college students reveals that few, if any, specific claims to effectiveness toward increased attendance, retention, and achievement can be made. A number of studies have dealt with the distribution of financial aids to individuals of varying socio-economic levels. Several authors (Cliff and Ekstrom, 1962; Holland, 1961; Harris Schenk, 1959; and West, 1963) have noted a tendency for financial aids to be distributed during the 1950's and early 1960's favorably to upper-income students or students who present the best case for themselves by supplying faulty information. Some tendency was noted for upper-class students to receive out-right grants; whereas, less affluent students were likely to receive an offer of only a loan.

Regarding the effectiveness of financial aids, several researchers (West, 1963; and Kimball, 1968) concluded that students who received scholarship aid were merely made more comfortably to afford their educational plans which they would have completed even without financial assistance. Others found no relationship between family financial status and college attrition (Brown and Callis, 1959; Berdie, 1954; Cliff and Ekstrom, 1962). Iffert (1956) concluded that student attrition is caused by a number of personality factors, such as academic interest, in addition to financial limitation.

There have been some questions raised as to the extent of financial aid necessary for students who attend low-tuition area colleges. However, as Willingham and Findikyan (1969) point out, the low-tuition two-year college frequently serves students on the "social margin of the educational ethos." Consequently, a greater proportion of the educational expenses of students attending two-year colleges may be required form sources outside the family than is the case for students at four-year institutions. The philosophy of the financial aid program at H.A.C.C. has been to provide assistance to low-income students who otherwise could not attend, or to allow them to enroll full-time rather than part-time at the College and to participate in a full college life as well. Thus, it is appropriate to inquire about the effectiveness of the financial aid program in attracting needy of low-income students to the community college, and in promoting their retention, academic achievement, and participation in related activities.

Purpose of the Study

The study is designed to answer two broad questions:

1. What are the academic, personal, and family background characteristics of financial aid recipients at Harrisburg Area Community College?

2. What evidences exist that financial aids have been helpful to recipients in promoting college attendance, educational achievement, and personal development?

Population

The population for this study includes full-time matriculants at H.A.C.C. during 1967, who received one or more of the following types of financial aid during the 1967-68 academic year: scholarships or grants from the College, private sources, Pennsylvania Higher Education Assistance Agency (PHEAA), or Economic Opportunity Grants (EOG); loans from National Defense Education Act (NDEA); employment under the College Work-Study Program (CWSP). These students may or may not have received the included types of financial aid during their second year (1968-69) at the College. Students who received only one or more of the following types of financial aid are not included in the study: Vocational Rehabilitation PHEAA loans, College short-term loans, veterans benefits, and regular part-time employment. These categories of aid were excluded from the study because they are not awarded exclusively to low-income students, but are available also to students from middle and higher income families.

A control sample was selected randomly from among all 1967 full-time matriculants at H.A.C.C. who had not received the types of financial aid which were determinants for including students in the financial aid recipient group. Because females were over-represented in the aid recipient group, a number of males had to be removed from the originial control group. For this study the aid recipient group contained 57 males and 51 females, and the control group contained 45 males and 40 females.

Research Questions

A significant objective of this study was to describe certain characteristics of students in the aid recipient and control groups. Also data regarding a number or research questions about achievement and retention were examined by using small sample statistics to test hypotheses. The research questions are as follows:

1a. Do financial aid recipients earn better grades than similar students who have not received financial aid?

1b. If such a difference in grades does exist, is it due to academic ability as measured by ACT composite score?

2. Do financial aid recipients experience academic suspension less frequently than students who have not received financial aid?

3. Do financial aid recipients remain enrolled (or receive an associate degree or certificate) to a greater extent than students who have not received financial aid?

4. Do financial aid recipients have a higher rate of graduation than students who have not received financial aid?

5. Do financial aid recipients earn more credits (during the two-year period ending spring 1969) than students who have not received financial aid?

Hypotheses which correspond to each of the above-written research questions were tested. Sexes were investigated separately.

Findings--Description and Research Questions

We now review our findings regarding financial aid recipients and the control group to include considerations of demographic characteristics, financial aid and employment information, reactions to having received financial aid, and patterns of college achievement and retention.

Demographic Description

The financial aid recipients and the control goup were found to be similar in terms of their age distribution, marital status, and educational level of their mothers. They were found to differ in terms of educational level of their fathers, number of dependent siblings and other dependent persons living at home, and at ACT composite score (a test of academic ability).

The median age of both groups of students was nearly 19 (18.9 and 18.7). Financial aid recipients reanged in age from a low of 17 to a high of above 35.

Each of the two groups contained slightly more males than females. The control sample was selected in a way to match the proportions of males and females in the financial aid group (p=.53 for males in each group). Thus, females tended to be over-represented in the financial aid recipient group as compared to the entire College student population, which consisted nearly of two males to one female.

Just under nine-tenths of the financial aid recipients and over nine-tenths of the control sample were single.

The mothers' educational level for both financial aid recipients and the control sample was essentially the same. However, the fathers' level of education was lower for the financial aid recipients than for the control sample (Table 1). One-third of the parents of financial aid recipients, as compared to one-fifth of the parents of the control sample, failed to complete high school.

Table 1
Fathers' Educational Level
For Financial Aid Recipients and Control Students

Fathers'	Far		Control	
Educational Level	N	%	N	%
Completed 8 yrs. or less	13	15.7	5	7.5
H. S., Attended	15	18.1	9	13.4
H. S., Graduated	39	47.0	37	55.2
Attended College	5	6.0	7	10.4
Received Bachelors degree	8	9.6	7	10.4
Received Higher degree	3	3.6	2	3.1
Total	83	100.0	67	100.0

Financial aid recipients reported a greater number of dependent siblings and other dependent persons living in their homes than did the control group (Table 2). Over one-third of the financial aid recipients, compared to about one-seventh of the control sample, reported three or more dependents in their homes.

Table 2
Dependent Siblings and Other Dependents
At Home For Financial Aid Recipients
and Control Students

Number of Siblings	Far		Control	
	N	%	N	%
0	13	14.6	22	28.2
1	28	31.5	27	34.6
2	15	16.8	17	21.8
3	18	20.2	7	9.0
4	7	7.9	3	3.8
5	4	4.5	1	1.3
6-up	4	4.5	1	1.3
Total	89	100.0	78	100.0

The mean family income for all financial aid recipients was $5700, compared to a median for all H.A.C.C. students of $7574*. Females had a lower family income than did males--$5137, as compared to $6193. It is interesting to note that the economic backgrounds of female aid recipients are noticeably lower than for males and that females are proportionally over-represented in the financial aid group. Implications and/or causation of these findings remain to be explored.

The financial aid recipients had a slight superiority ($p < .05$) in academic ability as measured by the American College Testing Composite score (mean scores of 19.7 and 18.0 for the aid recipient and control groups, respectively.)

Financial Aid and Employment

Median amounts for scholarships, loans, and CWSP during students' freshman year were $290, $254, and $358. T ese amounts were awarded to 67, 46, and 32 students, respectively. These awards are not additive for each recipient, as a given student might have received one or more of the several types of awards. Fewer students were granted awards during their sophomore year than during their freshman year, perhaps as a result of attrition and perhaps due to reduced financial need. Median amounts for scholarships, loans, and CWSP during students' sophomore year were $296, $281, and $401, respectively. These awards were granted to 42, 14, and 10 recipients, respectively.

No difference appeared to exist in the extent of partime employment between aid recipients and control students when College Work Study Program employment was included as regular part-time employment. Fifty-nine percent of the aid recipients and 70 percent of the control sample worked at part-time employment (not including CWSP) during their freshman year to an extent of 7.0 and 18.3 median hours per week. Within the control group, males and females tended to work the same hours per week, but within

*From 1967 ACT Student Profile Report Data.

the financial aid recipient group, males tended far more than females to have part-time jobs. The number of students who were employed part-time during their sophomore year dropped off slightly from the freshman year.

Reported Benefits of Financial Aid

One-half of the aid recipients stated that they probably or certainly could not have attended college without aid. Nearly one-fourth of the students indicated that they definitely could not have attended had they not received financial assistance. Females more than males tended to report that their college attendance was dependent upon receiving financial assistance.

Aid recipients reported direct academic benefits from receiving aid. They rated areas of possible benefit in the following rank order, with the percent rating as very important shown:

Area of Benefit	Percent Rating as Very Important
Additional years of college	61
More time for study	49
Carry a full-time schedule	45
Make better grades	43
Reduce part-time job	22
Participate in co-curricular activity	5

Despite the low rating given to participation in co-curricular activities by financial aid recipients, they reported slightly more participation than did control students.

Aid recipients were more receptive than were control students to the idea of accepting student loans and part-time jobs after transferring from the two-year college. The two groups were equally willing to accept scholarship assistance during their last two years of college. Financial aid recipients more than control students also noted a special social and personal obligation from receiving financial aid.

Retention and Achievement

Financial aid recipients earned significantly higher grades than did control students (Table 3). Also, grade achievement was found to be related to students' ACT scores. A numerical, but non-significant, difference between earned grades by males and females was found; females earned higher grades.

Table 3
Analysis of Variance Summary-Aid Recipient
and Control Groups, Sex, and ACT Score

Source	D.F.	F Ratio	Significance
Group	1	7.33	$p < .01$
Sex	1	2.51	NS
ACT level	2	3.94	$p < .05$
Group x sex	1	0.38	NS
Group x ACT	2	0.12	NS
Sex x ACT	2	0.16	NS
Group x sex x ACT	2	0.20	NS
Error	152		

Significantly more male aid recipients than male control students remained in good standing (were never academically suspended) through the two-year period (Table 4). No difference was found between females in the two groups.

Table 4
Academic Suspension Of Aid Recipients
and Control Students

	number of Males		Females	
	Far	C	Far	C
Never suspended	55	28	46	33
Suspended	2	14	5	3
	$X^2 = 15.87$, $p < .01$		$X^2 = 0.06$, $p < .05$	

Significantly more male aid receipients than male control students remained enrolled through the two-year period (Table 5). A smilar female difference was apparent, but was not statistically significant. Retention for males was better than for females within the aid recipient group.

Table 5
Continued Enrollment (of Graduation) of
Aid Recipients and Control Students

	Number of Students			
	Males		Females	
	Far	C	Far	C
Enrolled (or graduated)	42	21	32	21
Not enrolled	15	24	19	19
	$X^2 = 7.77$, $p < .01$		$X^2 = 0.97$, $< .05$	

The rate of graduation was higher for male and female aid recipients than for comparative control students. (Table 6) The rate of graduation was higher for females than for males within each group.

TABLE 6
RECEIVED DEGREE OR CERTIFICATE
BY AID RECIPIENTS AND CONTROL STUDENTS

	Number of Students			
	MALES		FEMALES	
	FAR	C	FAR	C
Rec'd degr. or cert.	20	7	25	11
No degr. or cert.	37	38	26	29
	$X^2 = 4.93$, $p < .05$		$X^2 = 4.34$, $p < .05$	

Male aid recipients earned significantly more credits during the two-year period than did male control students (Table 7). A similar female difference was apparent, but not significant. There were no differences in the number of credits completed between males and females within each group.

TABLE 7
MEDIAN NUMBER OF CREDITS COMPLETED
BY AID RECIPIENTS AND CONTROL STUDENTS

MALES		FEMALES	
FAR	C	FAR	C
54.5	37.5	53.0	40.0

Using the Mann-Whitney U Test for differences between badly-skewed samples, and correcting to use a Z test, we get:

$Z_{males} = 3.03$, $p < .01$ $N_1 = 57$, $N_2 = 42$

$Z_{females} = 1.28$, $p > .05$ $N_1 = 57$, $N_2 = 36$

Summary and Conclusions

Generally, greater differences were found between the male students of the two groups than were found between female students of the two groups. This suggests the possibility that receiving financial aid had a greater effect on the male students than it did on the female students.

Some differences between financial aid recipients and control students were found regarding student characteristics and retention and achievement patterns. However, our findings did not show a cause and effect relationship. The evidence did show, however, that our financial aid recipients were more deserving in terms of socio-economic criteria (family income and dependent siblings, that

they were academically more persistent, and that they did achieve at a higher grade level.

Our study did not provide clear evidence that financial assistance promoted college attendance among low-income persons, but the proposition is still supportable.

Our study was limited to the "low income" segment of financial aid recipients, and did not allow an investigation of more affluent students who received only funds which are open to students of middle and upper-middle income backgrounds, such as veterans' benefits and PHEAA loans. A more comprehensive study might attempt to compare academic retention and achievement of low-income and middle-income aid recipients, to examine more comprehensively the effects of financial aids to students of varying levels of financial need. Such a study may help us to learn more effectively how to allocate the limited resources available for financial aids, so as to promote those patterns of college attendance consistent with our educational purposes and social philosophies.