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ABSTRACT

The traditional approaches and structures of career programs must be made more relevant to students whose primary aim is obtaining a decent, satisfying job upon graduation. Educational innovations have represented an elitist view, and the aspirations of the "new students" from low-income and/or minority groups to obtain jobs that are not demeaning have been ignored or belittled. The new student faces special problems because he is not able to depend on his parents for financial support and because his parents' lack of knowledge of the system of higher education means that he must orient himself without specific parental support and encouragement. This new educational program attempt to approximate the real world of work with which the student must deal. Program philosophy includes the modular approach; a concentrated learning situation is combined with an internship. A module consists of 9 weeks of instruction, spread over 5 days a week, for approximately 6 hours a week. Requirements for the degree can be completed in less time than with the traditional approach. In addition to the internship, concepts included in the program include a master teacher, master practitioner, and a senior journeyman. Advantages of the program include increased motivation, acceleration, and the stress on individual learning, including student participation. Six modules leading to an A.S. degree in computer technology and their course outlines are attached. (KM)

Proposal for Staff Discussion

Staten Island Community College
CUNY May, 1973

CONCENTRATED CONTRACT LEARNING: A WORKING PAPER

INTRODUCTION

The Sixties and their mood and influences versus the Seventies and that decade's mood and attitudes, have been the subject of articles lately that draw comparisons and differences between the two decades. This has been particularly true in Higher Education which has undergone an enormous change in outlook, if not in substantive academic matters. The truth is that although black studies, women's studies and other interdisciplinary approaches to higher education have been introduced, particularly in the liberal arts area, they all basically use the traditional approach to achieve primarily the same general aims of a liberalizing education.

The problem, however, has not been faced with any actual program to meet the needs of a student clientele which is growing, albeit slowly now, diversifying and beginning to confront the realities of a tight job market. Too often the rhetoric of change has been only that. Too often the radical program has been an improvisor and a reaction to the rhetoric. Too often we know what these needs are, but yet refuse to meet them. Still the dichotomy between town and gown exists, regardless of the programs, institutes, etc. that we create, higher education continues to be, to create, to experience in a virtual vacuum divorced from society and industry. Nowhere

should this occur least than in the community colleges, yet too many of these institutions, in an attempt to emulate their "older brothers" have also begun to sequester themselves in what has become an academic tomb of their own making and choosing.

This should not be taken as an indictment of higher education in general or community colleges in particular. Actually what we are saying concerns itself with the logical extension of the momentum generated by an aggressive group during the Sixties. The word relevance was the highest point of achievement of this group.

Relevance from what to whom?

Black studies curricula are relevant and so are women's courses especially to these particular groups, yet the pattern of relevance has stopped with the liberal arts portion in a clearly traditional setting. Relevance is defined in the dictionary as: "pertinent to the matter at hand; to the point." The most relevant objective for most students in career programs is obtaining a decent, satisfying job upon graduation from an institution of higher learning. This is certainly true in the case of minorities and the children of blue collar workers who now constitute the majority of the students in CUNY. Their main order of business is the obtainment of a job that is not demeaning; that will represent to them and their parents a step up the social latter; that is not dead-end; that will be the

base for a more fruitful life for all concerned. These are old-fashioned ideals in the minds of the "sophisticated" young and old from the middle class. However, they are nevertheless the true aspirations of an "out group" that still must be convinced that it isn't that green in the middle class pasture. The imposition of the so-called new ethic or new morality on "new students" is nothing more than a thinly disguished form of paternalism which in essence down-grades the ethics and morality of the new students and attempts the imposition of the intelligentsia's or the upper middle class elite's approach to life in this society. Attempting to thwart the process of evolution, as some middle class people may see it, is simply the analogy between hitting a home run in baseball and not stepping on first base. Even though you have stepped on bases, two three and home you are <u>out</u>. The middle class delusion in this country is that they are the vanguard of what is new; that they know what is good for the rest of the populace and unfortunately, this is what has been reflected in the educational innovations in higher education over the last decade, namely, the projection of an elitist view. College education is supposed to be a "preparation for life." During the Sixties it created a life of its own and rightfully so. Yet the main business of getting a degree became secondary. The degree is a credential that signifies to a prospective employer that John Doe has completed thus and

such and is therefore able to do this and that. Implicit in the degree for many employers is also the cultural values, societal customs and traditions that the employer would like to see continued as an extension of his own.

THE NEW STUDENT

The common definition for the new student is the minority, the blue collar children, the white ethnic poor, the older adult, the returning vet; and at our institution, the ex-convict and ex-drug addict.

Each and everyone of them is new to the hallowed shores of higher education. They are hallowed because they are perceived as such by the people receiving the instruction.

One of the constant hangups which the new student faces is financial in nature. He finds it extremely difficult to rely on the parents for contributions to the cost of education. Even in a tuition-free institution such as CUNY, the cost of living is a factor that must be taken into account, since it does cost money to live in New York City. The work ethic and pride of parents and children work in tandem to create conflicts within the home. These are easily translated in the college scene by drop-outs; fail-outs; drug-outs. Whereas the middle class parent can support the youngsters, at home the new student is expected and, in some case, mandated

to contribute to the family income. Whereas the middle class youngster receives specific encouragement from his parents, the new student's encouragement, of necessity, is general in nature; rather than specific. Whereas the middle class student can usually rely on his parent's knowledge of the system's workings and ways, the new student must chart his own course through these previously unnavigated waters. The new student is not only expected to be more independent by nature of the work ethic after a particular age, but also per force because of the ignorance of the system's subtleties by the parents. This is not meant to be a glorification of middle class parents and an indictment of working class parents. The question is one of sophitication and previous experience versus one of aspiration tempered with reality.

THE PROGRAM

This educational program seeks to meet the expressed needs of this group of students. It attempts to further ferry if not bridge the gap between industry and academe; to approximate the real world of work with which the student will, nay must, deal once the necessity for employment becomes overbearing. It is pragmatic in nature and begins to address career education at the community college level in a different way.

The philosophy of this program includes the modular approach to higher education. Specifically, a concentrated learning situtation is combined with an internship experience, which serves to enrich the students education. A module consists of 9 weeks of instruction, spread over five days a week, for approximately six hours a week. It is projected that a student in the computer technology curriculum would complete the requirements for an A.A.S. degree in six modules or one and one-half years. This can be compared to the two and a half to three years that it is presently taking computer technology students to complete the requirements for the degree. There are a myriad of advantages to the modular approach which enrich both the student and faculty educational experience. The concepts are new, exciting, and extremely plausible in the modern university. They include internships, a master teacher, master practitioner, and a senior journeyman, all of which will be elaborated.

The internship is perhaps the most important aspect of the entire program. Here, in an industrial setting, the student will be exposed to the "real life" pressures of the profession. It is expected that during this "on the job training" insurmountable experience and keen perceptions into the profession will be obtained. The internship will give depth to the students education as well as make him more ex-

perienced in his profession. But most of all the internship will give the student the opportunity to "feel" how it is to be a professional. This will certainly reinforce the students' aspirations for success or will deter the student from following that particular curriculum, if he finds it unsuitable for a career.

The second aspect of the program includes the master teacher concept of education, similiar to the one to one instruction that Plato received from Socrates. We project a 20-1 teacher-student ratio, with the instructor operating in the capacity of teacher, mentor, confidant, and friend. The master teacher will be responsible for his students from the initial student orientation to graduation. Although he will not be teaching all the material, he will be expected to be present for the entire day. The benefit to the master teacher relationship is that the students will find a professional that they can rely on for counseling, direction, and insights into their chosen field from a person with experience in that field.

Another concept of this program is that of the master practitioner who will supply the students with an internship experience. They will be responsible for interviewing the students and placing them in a meaningful position within their company. They can be used every semester to accommodate new students, whose interests are similiar to their

predecessors'. Hopefully, we will be able to obtain a salary for these students since most of them will not be financially independent. But most of all, the experience and knowledge that these students will gain during their work experience will be an extremely beneficial complement to their theoretical classwork. The senior journeyman will also be used as a liaison between the industry and the college and will be responsible for keeping both institutions informed of any changes in the program. He will also be urged to try new approaches and innovations in the internship setting. As for his role in the classroom, he will be brought in for guest lecturing as well as seeking out other guest lecturers that he feels would benefit the students. Finally, he will be called upon to facilitate the job placement procedure for the graduates. An experienced professional with special contacts in the field will certainly help our students find jobs after graduation. The position of senior journeyman will be germane to the success of this program as well as the success of our students.

We feel that there are many advantages to this type of educational approach to education. Motivation has to be ranked first since the students will be aware of the special education that they will be receiving. They will also be motivated because of the small teacher-student ratio which will supply the student with personal counseling. Accelera-

tion is also a benefit to the students. It is projected that a student can finish the program in 6 modules or 1½ years. This compares to the 2½ to 3 years it is presently taking students to complete the degree requirements. Students may also be given credit for life experience which will add motivation and acceleration to the student's education. Individual learning will be stressed including student participation in his own education rather than being a passive recipient. The greatest benefit will be that of a superior education which the student will feel responsible for obtaining.

THE MODULAR APPROACH

Attached is a detailed schematic of the modular approach to higher education. The schematic has been prepared by the Computer Technology Department which has also included a course outline. As mentioned earlier, it is projected that a student would complete all the requirements for a degree in 1½ years. It is expected that the college calendar might be as follows:

(1973) Sept. 1 - 30	Orientation for Freshman
(1973) Oct. 1 - Dec. 1	Module 1
(1974) Jan. 21 - Mar. 31	Module 2
(1974) Apr. 8 - June 15	Module 3
(1974) June 24 - Aug. 30	Module 4
(1974) Sept. 16 - Nov. 15	Module 5
(1974) Dec. 2 - (1975) Feb 14	Module 6

Orientation stretched over the month of September would allow ample time for each and every entering freshman to receive the personal, academic, and vocational counseling that they deserve. The calendar also allows a two week break between modules for R and R. . . REST and REGISTRATION.

It is within these modules that the expertise of the master teacher comes to play. It is his job to have the various academic areas, within the module, meld together to form a meaningful, academic, enlightening educational experience. This approach not only accelerates the educational process, but adds relevance to the students education. The knowledge that all areas of study are related to one another will add clarity and initiative to students who will now understand that his education is his and his alone.

What follows is the six modules leading to an A.S. degree in computer technology and their subsequent course outlines.

SY - CS - AS TRANSFER DEGREE

MODULE 1

Course	Credits
CS 137	4
MATH 5 or 20	5
ENGLISH 111	5
	12

MODULE 2

Course	Credits
CS 138	4
MATH 6 or 21	3 or 4
ENGLISH	3
	10 or 11

MODULE 3

Course	Credits
CS 145	4
MATH 7 or 22	3
HISTORY/SOCIAL STUDIES	3
	10

MODULE 4

Course	Credits
CS 146	4
PHYSICS	4
HISTORY/SOCIAL STUDIES	3
	11

MODULE 5

Course	Credits
CS 154	4
PHYSICS	4
P.ED.	
HEALTH ED.	2

MODULE 6

Course	Credits
Work Experience	11
CS Elective	4
	15

TOTAL 57 or 61 CREDITS

ALLOW 13 or 9 for work

TOTAL 70 CREDITS

DEPARTMENT OF COMPUTER TECHNOLOGY

SY - CS - AS TRANSFER DEGREE

Course Outline

SUMMER, 1973 - JULY 9 - AUGUST 17
CS 102

July 9-12	Algorithms & Computers
16-19	Flowchart concepts
23-26	" "
July 30-Aug.2	Looping
Aug. 6- 9	Looping
Aug.13-16	Functions and Procedures

FALL, 1973 - September 10, 1973 - November 9, 1973
CS 137 - Module 1

Week 1	9/10-9/14	Basic Concepts, Basic instructions
Week 2	9/17-9/22	Number system, Assembler language
Week 3	9/24-9/28	Programming, Loops, Indexing
Week 4	10/1 -10/5	Subroutines
Week 5	10/8 -10/12	Two address operations
Week 6	10/15-10/19	Input/Output Macros
Week 7	10/22-10/26	The Operating System
Week 8	10/29-11/2	Logical Shift and Miscellaneous Operations
Week 9	11/5 -11/9	Computer Status and Privileged Instructions

FALL, 1973 - November 12, 1973 - January 25, 1974
CS 138 Module 2

Week 1	11/12-11/16	Sets, relations, mappings
Week 2	11/19-11/23	Boolean Algebras
Week 3	11/26-11/30	Boolean Algebras
Week 4	12/3 -12/7	The propositional calculus
Week 5	12/10-12/14	The propositional calculus
Week 6	12/17-12/21	Graph Theory (directed graphs)
VACATION	12/22-1/6/74	
Week 7	1/7/74-1/11	Graph Theory (directed graphs)
Week 8	1/14 -1/18	Finite Automata
Week 9	1/21 -1/25	Finite Automata

Student is now prepared for work in the field as a programmer trainee. This would be a good time for him to have this experience. For now, we will schedule leaving no time for this. Assume that work experience will come at the end of the program - concurrently with Module 6 - which may be scheduled during the evening.

DEPARTMENT OF COMPUTER TECHNOLOGY

SY - CS - AS TRANSFER DEGREE

Course Outline (continued)

SPRING, 1974 - February 4, 1974 - April 5, 1974
CS 145 - Module 3

Week 1	2/4 - 2/8	Graph Theory (Trees)
Week 2	2/11-2/15	Tree search
Week 3	2/18-2/22	Lists and Strings
Week 4	2/25-3/1	Key transformations, Hashing techniques
Week 5	3/4 -3/8	Searching, sorting
Week 6	3/11-3/15	Stacks, pushdown stores
Week 7	3/18-3/22	Symbol table construction and look-up
Week 8	3/25-3/29	Input/Output techniques
Week 9	4/1 -4/5	Input/Output and random access devices

SPRING, 1974 - April 15; 1974 - June 14, 1974
CS 146 - Module 4

Week 1	4/15-4/19	Macros, conditional Macro generation
Week 2	4/22-4/26	" " " "
Week 3	4/29-5/3	Tables, searching; deletion, addition of entries.
Week 4	5/6 -5/10	Language description
Week 5	5/13-5/17	Lexical analysis
Week 6	5/20-5/24	Syntax analysis
Week 7	5/27-5/31	Syntax analysis
Week 8	6/3 -6/7	Code generation for arithmetic expressions
Week 9	6/10-6/14	Code generation for arithmetic expressions

SUMMER, 1974 - June 24, 1974 - August 23, 1974
CS 154 - Module 5

Week 1	6/25-6/28	Representation of information
Week 2	7/1 -7/5	Gates and elementary logic
Week 3	7/8 -7/12	Read-write storage
Week 4	7/15-7/19	Read-write storage
Week 5	7/22-7/26	Addressing techniques
Week 6	7/29-8/2	A description of an elementary machine
Week 7	8/5 -8/9	Input/Output
Week 8	8/12-8/16	Special instructions
Week 9	8/19-8/23	Channel programming project

FALL, 1974
Module 6 to be completed in regular evening session during the fall term of 1974 concurrent with the first experience as a Programmer.

Graduation to take place in the spring of 1975, after granting 9-13 credits for work experience.

Staffing Needs

1-	full time faculty member for Modules 1-4	$16,760
	extra remuneration for Module 5 since it raises the load from the normal 24 contact hours per year to 30 and it occurs during the summer session	1,980
1-	half time counselor	8,000
	employment costs - may use commercial agencies may get service gratis.	
1 -	special counselor for above (full time for one semester)	8,000
	Internship stipends for one semester - after that employer will pay for the Spring term.	
	5 months at $200 per month = $ 1,000 $1000 x 20 = $20,000.....	20,000
	TOTAL	$54,746

Equipment

10 - Terminals to do interactive programming on laboratory facility.*
10 terminals at $2,500 each = $25,000

*The college will provide additional terminals when there is a big demand from these students.

The college provides free use of the IBM 360/30 and free time on an IBM 370/168 via terminals

External Evaluation

Request the following to evaluate the program:

Dr. Beckman
Chairman, Information Science
Brooklyn College

Dr. Goodman
Chairman, Computer Science
Queens College

Dr. Madigan
Chairman, Computer Science
City College