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ABSTRACT

The document is the first volume of the final report on an inservice training institute in career education; five teams of K-12 educators from three different school districts in one region of Pennsylvania in the three one-week sessions, which were held at four-week intervals. The goals of the institute were to improve the scope of the participants' career education concepts, to increase their career education strategies and techniques and their commitment to career education, and to develop career education curriculum units and usable classroom media. The report briefly describes the procedures followed in organizing and conducting the institute, presents and analyzes the findings of surveys of the participants' attitudes and reactions, and concludes with an outline of the career education curriculum unit which was used to train the educators during the institute. Among the conclusions are these: A curriculum infusion model appears to be a viable strategy for introducing career education elements into a school; intensive sessions with intervals between them and interaction among participants from different districts facilitated the training. That participant teacher and counselor aides did not effectively support teachers' implementation of units is attributed to the omission of a specific training module for aides. (AJ)

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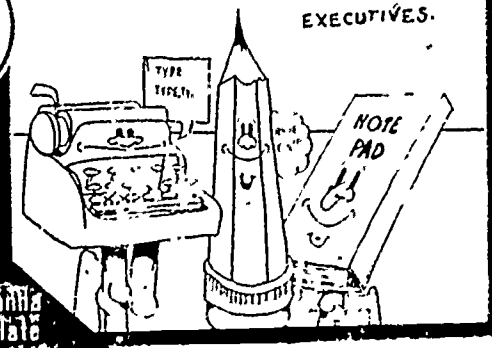

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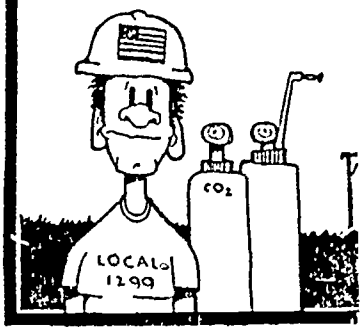

Central Susquehanna Intermediate Unit (I.U. # 16)

career education services

vol. I

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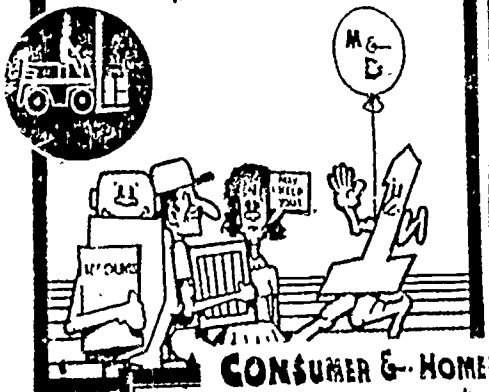

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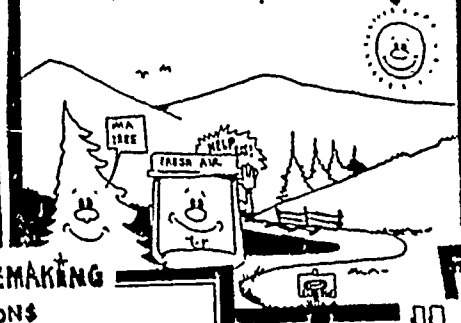

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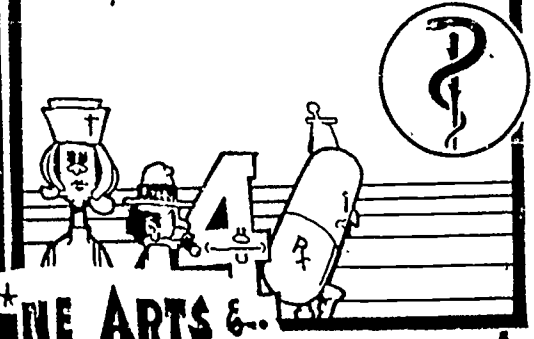

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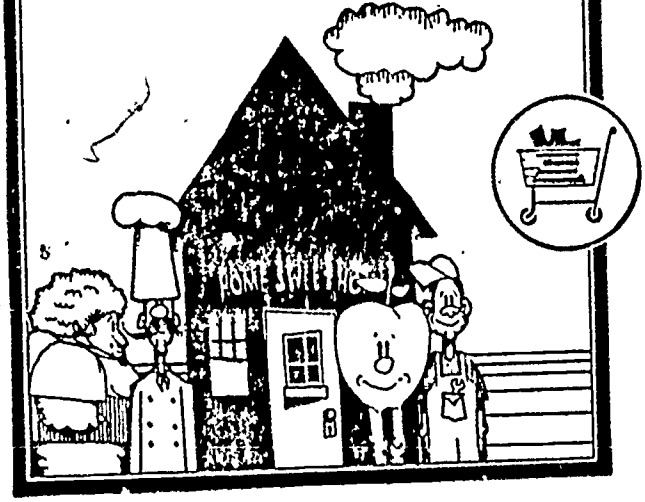

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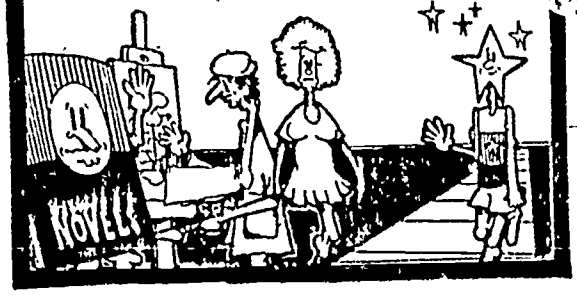

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FINAL REPORT

CSIU CAREER EDUCATION INSTITUTE
(Project No. 19-3019)

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November 1, 1974

PENNSYLVANIA DEPARTMENT OF EDUCATION
Bureau of Vocational Education
Research Coordinating Unit

The Central Susquehanna Intermediate Unit (CSIU) is one of 29 created by the Commonwealth General Assembly in May, 1970 and implemented on July 1, 1971. The 29 intermediate units replaced the 67 county superintendents' offices which had been in existence since 1854.

The CSIU provides a broad array of educational services to the 50,000 students in 17 member school districts and three area vocational-technical schools located in five Central Pennsylvania counties, Columbia, Montour, Northumberland, Snyder and Union. Since the CSIU is a regional educational service agency, not an administrative arm of the State Department of Education, it has many and varied close linkages with its member districts. These linkages largely revolve around mutually beneficial program involvements such as the one described in this report.

The CSIU is headed by an elected board of directors containing 13 members who, in turn, elect an executive director. The executive director, in turn, is advised by a Superintendent's Advisory Council, the membership of which consists of the chief school officers of the 17 member districts and the three area vocational-technical schools. Funds for the operation of CSIU programs consist of a small basic state subsidy for general operations and largely come from member school district service purchases or special state or federal grant awards received to underwrite the costs of programs such as the Career Education Institute.

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Preface

Central Susquehanna Intermediate Unit's philosophy includes a responsibility for service to local constituent school districts in current educational trends. Career Education is currently a concept of high priority. Some components of a Career Education System such as in-servicing, can be more efficiently accomplished by an Intermediate Unit for several school districts than by a single local district because of ease of combining district small interest groups and the issue of inservice credit. Therefore, a Career Education Institute was formed to train district teams of personnel and to assist with implementation of career education thematic curriculum units.

Acknowledgements

Acknowledgement is gratefully given to the following individuals and institutions for their assistance with the development and evaluation of the inservice activities reported herein.

1. To the administration of the Bloomsburg, Millville, and Berwick School Districts for their cooperation and flexibility concerning scheduling.

2. To the participants who gave many extra hours to accomplish their individual goals.

3. To the Pennsylvania Bureau of Instructional Support Services who shared draft copies of the Pennsylvania Career Development Guide.

4. To the Research Coordinating Unit of the Bureau of Vocational-Technical Education of the Pennsylvania Department of Education for the funds to make this project a reality.

Introduction & Procedures

A. Background

During the 1972-73 school year the Central Susquehanna Intermediate Unit (CSIU) established a Career Education Information Services project supported by ESEA Title III funds. A concomitant need for personnel on the local district level trained in the use and integration of career development procedures was anticipated. With this need demonstrated, an extension of career education through teacher inservicing was sought from and approved by the Research Coordinating Unit (RCU) of the Pennsylvania Department of Education's Bureau of Vocational-Technical Education.

The original Career Education Institute (CEI) proposal approved by the RCU included eight goals originally designed for a more comprehensive career education project. These goals were not modified in the CEI proposal but were subsequently modified as the CEI was implemented. One of the functions of this report is to describe the actual program protocol so that the results can be seen in relation to the actual program implementation.

For example, two major modifications were made in the proposal; the first was the elimination of the Parent Cooperative Education Program due to an existing "Parent Education Project" operated by the CSIU. The second deletion was the special emphasis on handicapped students since the relevancy to all students was deemed jeopardized if this focus were to be maintained in the project.

B. Goals

Endorsing the United States Office of Education's position and current theoretical concepts of career education which emphasized the developmental stages of awareness, exploration, and preparation, the following goals were set:

1. Improve and expand inservice training for teachers and counselors, and expand adult involvement in occupational education and training programs.

2. Develop an increased awareness of self, positive attitudes, aspirations, and skills for decision making relative to the personal, social, and economic significance of work in all youths involved in the program.

3. Support, use, coordinate and expand, where applicable, existing regional, community and government resources and school-based programs designed or adaptable to meet the career development needs of youth.

4. Implement elementary grade experiences aimed at developing career awareness and a perspective towards the world of work; junior high or middle school level experiences for career orientation and exploration; and senior high level experiences for career orientation and exploration for those students who have had no previous career education involvements.

The rationale of the CEI project was that career education can best be implemented through an integrated approach to the total curriculum, grades K-12. The USOE's pupil developmental stages of awareness, exploration, and preparation were emphasized constructs.

The implementation of the four goals was accomplished primarily through the establishment of a Career Education Institute "CEI" offering inservice training and continuous supportive follow up service to participants. The Institute was staffed by the following part-time personnel; a project director, a research and evaluation specialist, an instructional materials specialist, three career education specialists, a career education consultant, and a clerical aide.

C. Procedures

Upon receipt of funding approval in October of 1973, the project director selected a geographical cluster of school districts who had no previous career education programs but who had expressed interest during the previous year for such an innovation. The project director described the project's intent to each of the three school districts designated for the project. Each superintendent was asked to submit the names of four teachers, one counselor, and one aide from whatever level (Elementary, Junior High, or Senior High) he had determined for his district's involvement in the project. In selecting these persons, the project director urged that consideration be given to the following factors: persons who would not be uncomfortable in a demonstration or "showcase" setting; teachers who appeared to have the respect of their peers; staff members whose previous behavior indicated enthusiasm and willingness to do more than just what was required; members of the same building staff.

All personnel recommended by local administrators, who used the multiple criteria for selection, were accepted for training. Team A was composed of four elementary teachers, the elementary guidance counselor and his guidance aide. They came from a small rural school with grades K-3 in a self-contained classroom organization, and grades 4-6 in a departmentalized organization. Approximately 200 students were enrolled in this school. A unique feature of this team was their age and experience: four were under thirty years of age and had three or fewer years of experience.

Team B members came from an elementary school located on the edge of a large borough. Ability phasing was the structural grouping for these students in grades K-6. This second elementary team was also composed of four teachers, an elementary guidance counselor and a guidance secretary. All team members were female; participation of these members was largely motivated by the need for credit.

Team C was selected from a seventh to ninth grade junior high school with a student enrollment of 400 within a large town. Four teachers, a teacher's aide, and a counselor completed the team membership. The disciplines of English, Math, Social Studies, and Science were represented. Three of the teachers were under age thirty representing a faculty of the same age proportions. A major factor in this team's selection by their administrator was their tentative designation as a team teaching unit for the 1974-75 school year in a newly organized middle school staff.

Team D was selected from the senior high school of the same district as the Junior High Staff in Team C. Biology, General Math, Literature and Social Studies teachers worked with the counselor and the work-study coordinator in this unit. The majority of the team was over thirty-five years in age. All were male with the exception of the counselor.

Late approval of the proposal in October made it impossible to plan for a two-week training period at the outset. The original plan called for identification, selection, and an orientation training period to be held during the summer of 1973. When the late approval necessitated a start up of the project during the school year, the superintendents were very reluctant to release their staff for training for a two-week block of time. Therefore, three one-week training modules were developed.

The original proposed program included four components: The Human Development Program, Instructional Development Institute, Career Development Education, and Instructional Media. IDI and Career Development Education were combined in the second training module for two important reasons: (1) After a programmatic assessment of the proposed training packages, the CEI staff concluded that it would be unnecessary to separate curriculum development didactic input from an introduction of career development concepts and instructional strategies; and (2) the final budget necessitated a reduction in the training program from twenty to seventeen days.

CEI staff then made appropriate arrangements for the first training week to be held in December. Sites for training included a local motel conference room, Intermediate Unit facilities, and industry sites. A deliberate attempt was made to keep participants physically removed from their classroom responsibilities. Costs of substitutes were borne by the CEI grant.

All participants, as well as other building faculty from Teams C and D, were administered the I.U. #16 Career Education and Teacher Change Assessment "CETCA" which measured general educational philosophy, career education concepts, and pre-disposition to change. (Appendix A)

Week one, highlighted instructional media. The initial day of orientation and acquainting of teams to the project's purposes was done by the Project Director, Carl Pepperman. Then, Richard Cassel, I.U. 16's instructional media specialist organized teams into a two-day progression through learning stations of media instruction.

Participants were involved in hands-on experiences and demonstrations in the use of 8mm, 35mm, and television cameras, video tape recorders, editing techniques, audio equipment and transparency production. The fourth day of training thrust all participants into actual filming experiences within industry with classroom usable media of 8mm, 35mm, and video tape required of all teams. Viewing and sharing of experiences culminated the week with much growth occuring from peer critiquing.

Merrill Meehan, an advanced doctoral candidate from Penn State, was selected as the career education and curriculum consultant to conduct Phase II (Week II) of Institute activities. The goals and agenda were developed in cooperation

with the CEI staff (Appendix B). This five day series of activities, with strong criterion evaluation, included general career education concept orientation, curriculum theory and demonstration of potential resources and activities along with initial unit writing of Thematic Resources and Activities for Career Education (TRACE) units. Each participant was required to complete a usable unit of instruction which he would later implement in order to obtain mastery of the week's objectives. (Volume III of the report contains a copy of each unit produced and implemented.)

With the cooperation of the Pennsylvania Department of Education, draft copies of the Pennsylvania Career Development Guide were shared with the CEI. This served as a model and resource for the development of curricula throughout Week Two with emphasis placed on the four domains of vocabulary, knowledge, attitude and skills, and the six concerns of self, education, career, economics, decision making, and leisure (Appendix C)

During two days of Phase II, the three aides were assisted by staff to develop and produce a game/media activity that would involve a map of their local town. (Volume III)

In the weeks following the Phase II Workshop, Merrill Meehan critiqued each first draft of TRACE units and then held individual conferences with each participant to review criticisms. He again critiqued second, third, and in some cases fourth, drafts until members realized achievement of workshop goals.

As Phase II training ended, supportive services by career education specialists intensified. These persons were charged with the responsibility of the elimination of as many barriers as possible which could potentially negate the implementation of career education within the classrooms. Specific activities involved arranging of team meetings (Appendix D); facilitation of rapport among team members; ordering or purchasing of specific materials and supplies for teachers; consultation on strategies; working with "newly" interested faculty; easing of administrative "red tape" on the district and Intermediate Unit level; researching information necessary for teachers; assisting with rewriting TRACE units; conducting of inservice workshops; assisting with planning for local district long-range career education plans; attempting to establish a continuous program of positive reinforcement of teachers' activities; encouraging of public relations activities; attempting to convey philosophy of integration of roles of teacher, counselors, paraprofessionals and parents; and generally encouraging career education activities in any of the six concerns for development.

The third and final week of training occured in March, 1974. Goals for this third week included affective development of participants, inservice of classroom techniques, and multiplication strategies. The project director conducted a three-day Human Development Program training phase for 75% of the participants during the initial segment of Week Three (Appendix E). Human relations and values clarifications activities were modeled for the participants. Because five of the workshop members had already participated in this HDP orientation, a specialized workshop was held by CEI staff members to develop a career cluster learning station for elementary students. No commercial materials existed in this field and a local need was urgent. Through brainstorming and consensus-reaching techniques, a learning station for introducing environmental careers was designed and produced by the end of the third day. (Appendix E)

The final two days were spent sharing successful techniques learned while in separate activities and included innovative suggestions which emphasized community involvement in the implementation of career education programming. A final series of activities designed to elicit "public" commitments to the challenges of "implementation" concluded week three.

Feedback from participants of the original or "first generation" CEI resulted in requests for involvement of additional teachers from the participating districts. Because one of the goals of the CEI was to assist the original participants in their role as change agents within their district, the staff welcomed these requests.

Each original CEI participant identified one teacher who had a desire to implement the concepts of career education. The identified teachers, (second generation CEI) participated in a three-day workshop which provided essential background information for such implementation. Each duo then worked together toward implementation. The original CEI participants were able to provide the details of his/her learning experience to assist his/her team mate gain a comprehensive understanding of the concept of career education. A natural internal involvement of a comprehensive career education program seemed the most obvious endorsement of this multiplier effect. No restrictions on subject, grade level, or building were imposed, opening each district's involvement K-12. Experiences within each of the six concerns were modeled, accompanied by general orientation to career education during May 6, 7, & 8 for these additional 20 district personnel. (Appendix G)

Through word of mouth and field experiences the elementary career cluster learning station became popular. A need for more and different units of this nature developed. Based on previous developmental experiences, two first generation members produced an elementary learning station for Agri-Business and Natural Resources (Appendix F) along with 130 supplementary third grade reading level career information briefs. (Volume V)

During the final stages of the project, the project staff encouraged community involvement through four activities. The first was the production of a regional community resource directory. Forms were distributed by district personnel soliciting persons who would serve as role models on a one-to-one basis and/or resource classroom speakers. Compilation, production, and distribution activities followed. (Appendix N)

The second community effort was in cooperation with the four Bureau of Employment Security Offices of the five-county Intermediate Unit Region. A one-year period of their respective job listings was reviewed by the project director's wife (who donated her time). The names and frequency of placements were tallied and later classified by clusters. This served as a reference for area job employment trends. (Appendix H)

The third effort, which aborted, was the establishment of district career education advisory councils. (Appendix L) Reasons for this "failure" included a) overlapping functions of already existing committees such as Team B's Business and Industry Advisory Committee for Cooperative Education; b) Building support

was not matched by district level involvement; c) administrative policy changes; and, d) limits of time left in the school year. Although not implemented, evidence of interest for future years is present among local personnel.

The fourth effort was the funding of the cost of field trips which were taken in connection with TRACE units or career education curriculum. Butcher shops, airports, mushroom plants, TV stations, bottling plants, tourist industries, government buildings, orchards, supermarkets, and restaurants were some of the group visits with an emphasis on awareness of work.

Late in the winter a need became evident for a better communication system among staff and participants. Essential factual information was exchanged by memo but there was a lag in sharing of current research and ideas. A newsletter "Career Education Update" (Appendix J) was published attempting to facilitate the information flow to participants and also to other interested persons. A second issue was mailed in the summer.

The CSIU career information service developed in 1972 was in need of supplementing and updating to keep it usable. CEI staff revised or added 192 career briefs to the already existing retrieval system. Much of this information was obtained through the Pennsylvania Department of Education's PENNScript Program. The target area for this information were students at the Junior and Senior High School levels. Additional information for briefs was obtained from the 1974-75 Occupational Outlook Handbook (Appendix K). Reprints of both PENNScript and Occupational Outlook Handbook briefs were then mass-produced by a local printer.

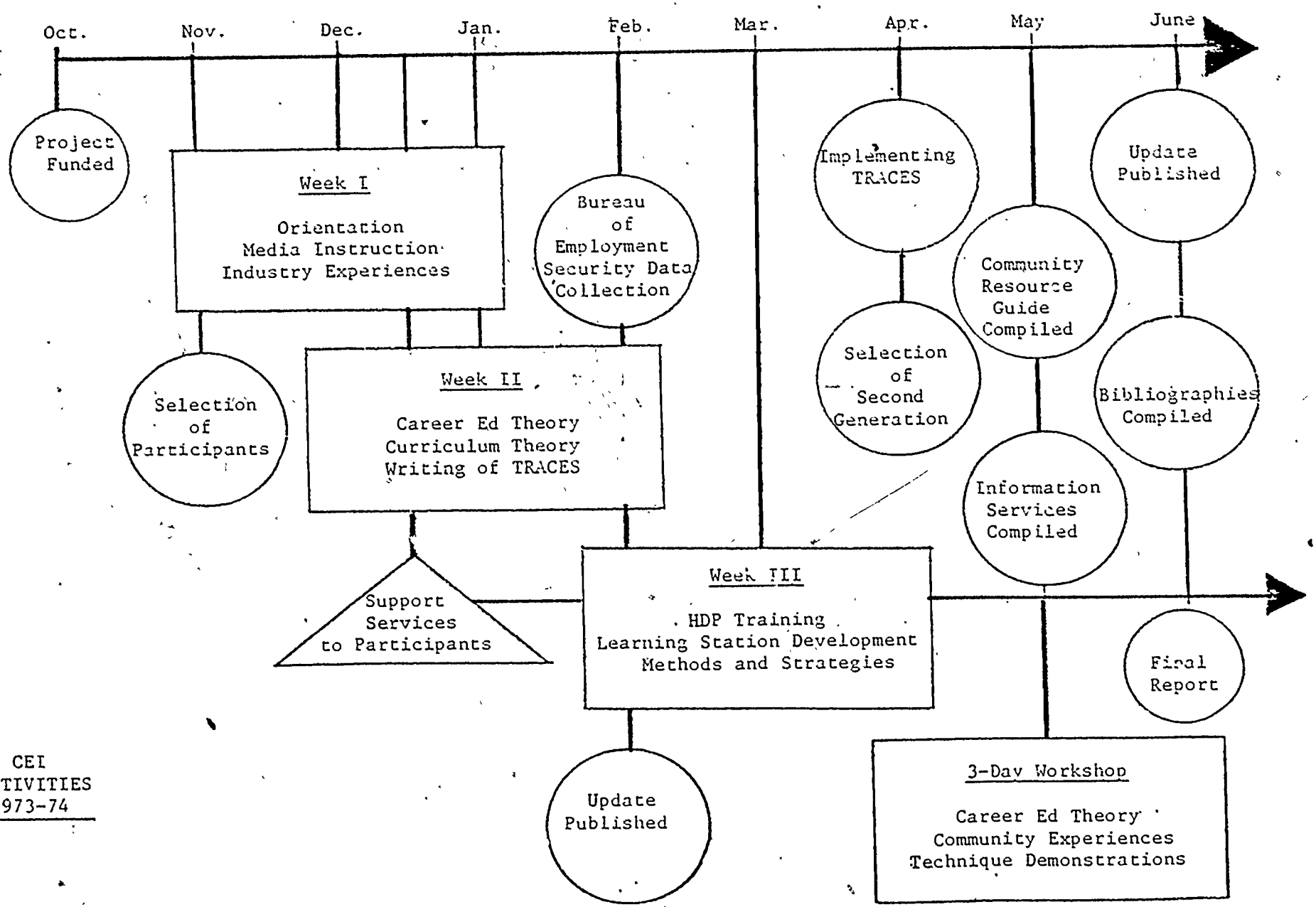
Throughout the project an attempt was made to purchase commercial materials that would be usable and applicable within the local region. Consumable items were used by CEI participants in the classrooms but all reusable materials were retained in a resource center at the Intermediate Unit. A complete annotated bibliography of existing resources was compiled for later reference by Career Education Institute "Alumni" and future enrollees. (Appendix L)

In order to increase the usability of produced TRACE's, they were edited by the original consultant and the Career Education Institute staff and produced in book form along with participants evaluations. (Volume III) This volume was then distributed to all CEI participants and other interested persons.

Culminating activities of the project included a dinner meeting for the first and second generation trainees for purposes of sharing accomplishments. Standard subjective evaluation forms and posttesting of CETCA were accomplished. (Appendix M) The district control groups of Teams C and D were also post-tested.

All participants who completed the required three weeks of training satisfactorily were awarded six inservice credits.

FIGURE 1



CEI
ACTIVITIES
1973-74

FINDINGS AND ANALYSIS

A. Survey of Participant Attitudes

A three-part survey instrument was used as a pre-test at the beginning of the first session of the Career Education Institute in December, 1973 and was administered again as a post-test at the conclusion of the program in June, 1974. The instrument consisted of the Education Scale VII (ES-VII), developed by Fred N. Kerlinger, the Career Exploration Scale (CES), developed by Nancy Pinsom for the Maryland State Department of Education, and the Change Orientation Scale (COS), developed by Earl B. Russell for the Ohio State University.

Kerlinger (1969) has described the ES-VII as a 30-item instrument developed to measure relatively "pure" measure of progressivism and traditionalism as reasonably reliable and valid measures of attitudes toward education. Seidel and West (undated) described the CES as an evaluation instrument designed to ascertain the attitudes of teachers on career exploration and various aspects of inclusion of careers as an integral part of the curriculum. The COS was described as a survey of opinions regarding various statements about vocational education and attitudes toward innovations and was used to identify "early adopters" and "laggards" with respect to implementing vocational education innovations.

The CEI survey instrument used the ES-VII and CES as published, but altered both the vocational education references and the response scale of the COS. "Vocational and occupational education" references were replaced by "career education" references, and the six choice response scale was replaced by a four choice response scale on the COS. It must be recognized that these alterations of the COS, although seemingly minor, could have affected the validity of the instrument in assessing attitudes toward career education innovation.

The data for the CEI attitude survey have been summarized in Table 1.

The eleven CEI participants represented the group of 24 participants originally selected for the three-week Institute, and the eleven teachers in the multiplier group represented 20 participants chosen for the three-day expansion program. The junior and senior high control groups represented the entire building faculties of a district involved in the CEI, except that the scores of participating teachers were excluded. An elementary control group was included in the evaluation design; however, various events prevented the CEI staff from obtaining valid pre-test and post-test scores from this sample. The original plans also called for assessments from all participating districts from non-participating teachers on all grade levels instead of from just the one district included in the summary. These plans, too, were unable to be fulfilled.

Statistical analyses were calculated on the basis of a sample size of eleven since that was the largest number of pairs of data that was available. Pairs of data were randomly eliminated for those samples larger than eleven; thus, all sizes for the analyses were equal which allowed for greater statistical

Table 1.--Summary of CEI Attitude Survey Data

Assessment Instrument	Statistic	CEI Participants		Multiplier Group		Junior High Control Group		Senior High Control Group		Combined Control Group	
		pre test	post test	pre test	post test	pre test	post test	pre test	post test	pre test	post test
ES-VII Progressive Scale	$\bar{x}$	19.18	19.81	23.00	22.63	17.45	16.45	16.18	22.00	16.81	19.22
	s.d.	9.38	9.20	3.28	4.10	7.82	8.85	6.25	5.89	6.94	7.87
	n	11	11	11	11	11	11	11	11	22	22
	t		0.49		-0.29		-0.67	*	3.59	*	1.84
ES-VII Traditional Scale	$\bar{x}$	-1.63	-1.81	3.00	1.63	9.09	10.27	8.90	13.45	9.00	11.86
	s.d.	11.94	10.30	10.33	9.59	6.26	4.56	6.64	11.15	6.30	8.47
	n	11	11	11	11	11	11	11	11	22	22
	t		-0.08		-1.33		0.64		1.75		1.79
Career Exploration Scale	$\bar{x}$	-3.45	-2.90	-3.00	-2.27	0.45	-0.82	0.54	-0.45	0.50	-0.63
	s.d.	1.80	3.67	2.40	4.79	4.92	4.49	6.62	2.76	5.69	3.64
	n	11	11	11	11	11	11	11	11	22	22
	t		0.50		0.55		-0.97		-0.48		-0.95
Change Orientation Scale	$\bar{x}$	-1.54	-3.45	-2.81	-3.72	-2.64	-1.09	-1.90	-3.54	-2.27	-2.31
	s.d.	2.29	1.96	3.09	2.57	2.33	3.41	2.73	2.69	2.51	3.25
	n	11	11	11	11	11	11	11	11	22	22
	t	*	-3.20		-0.95		1.16		-1.45		-0.04

* pre/post test difference significant at the $p<.10$ level of confidence.

power. The alpha significance level for the analyses was set at p=0.10. This level was selected in order to obtain greater statistical power for the exploratory study; the retention of a false hypothesis was deemed more critical than the rejection of a true hypothesis, especially since plans have been made for continuation and replication of the CEI during a second year phase.

The only significant differences described by the data were between the two administrations of the COS survey with the CEI participants, and of the ES-VII (Progressive) survey with the senior high and combined control groups. The CEI participants showed a significant decrease on the COS (critical value of $t=\pm 1.81$) while the senior high and control groups showed a significant increase on the ES-VII (Progressive) survey (critical values of $t=\pm 1.81$ and ± 1.72).

Statistical significance is only one consideration of these data; the other is one of meaningfulness. Since all samples had scores on the COS above the extrapolated score determining early adopters, all groups of teachers could be classified as early adopters. The only statistical change, however, was the decrease of the CEI participants toward the score which defined early adopters (although they were still above that score).

There are certain considerations that may have affected the reliability of the scores which should be mentioned (factors possibly affecting the validity of the COS have already been mentioned). The tests were obviously administered in different surroundings. The pre-test was given in fairly elegant surroundings in a local motel meeting room with attention by the staff to encourage the initial eagerness of the beginning participants; the post-test was given in each local school building at the end of the school year when there were local pressures and building problems. The test, too, might not have been as sensitive to the problem being evaluated as other measures or as an instrument designed specifically for the project. However, this finding should be more carefully scrutinized in the planned extension of the CEI. Perhaps there was something in the proceedings which caused participants to change their attitudes toward career education innovation; perhaps there were local situations which influenced the participants more than the CEI; or perhaps the significance level selected caused a rejection of a true hypothesis. Whatever the reason hypothesized at this point, a specific procedure should be designed to investigate these results in more detail.

The only other statistically significant finding was with the ES-VII (Progressive) scale. The senior high and combined control groups scored significantly higher on the post-test than on the pre-test. Whether this was due partly to the fact that all teachers in the control group were from the same district and that district had two participating teams in the CEI which may have influenced the control teachers, whether there was some other systematic inservice program operating in this district, or whether these teachers became "test-wise", should also be investigated in more detail.

Table 2 summarizes results of the analyses of all pre-tests, post-tests, and gain scores between the four groups of teachers .

Table 2.--Summary of Multiple Comparison Analyses of CEI Attitude Survey Data

Assessment Instrument	Multiple Comparison * Participant Groups and Mean Scores					Analysis of Variance Summary Tables** Source	SS	df	ms	F	significance
PRE-TEST DATA											
ES-VII Progressive Scale (PROG)	$\bar{x}$	SHC 16.18	JHC 17.45	CEI 19.18	MULT 23.00	Participants	289.90	3	96.63	1.93	n.s.
						Error	1994.01	40	49.85		
						Total	2283.91	43			
ES-VII Traditional Scale (TRAD)	$\bar{x}$	CEI -1.63	MULT 3.00	SHC 8.90	JHC 9.09	Participants	3464.96	3	1154.98	14.28	$p < .10$
						Error	3235.48	40	80.88		
						Total	6700.44	43			
Career Exploration Scale (CES)	$\bar{x}$	CEI -3.45	MULT -3.00	JHC .45	SHC .54	Participants	154.00	3	51.33	2.65	$p < .10$
						Error	772.19	40	19.30		
						Total	926.19	43			
Change Orientation Scale (COS)	$\bar{x}$	MULT -2.81	JHC -2.64	SHC -1.90	CEI -1.54	Participants	11.90	3	3.96	.57	n.s.
						Error	227.83	40	6.94		
						Total	289.73	43			

*CEI=Career Education Institute participants
MULT=Multiplier Group participants
JHC=Junior High Control group
SHC=Senior High Control group

**SS=Sum of Squares
df=degree of freedom
ms=mean square
F=F statistic

Table 2.--Continued

Assessment Instrument	Multiple Comparison Participant Groups and Mean Scores					Analysis of Variance Summary Tables Source	SS	df	ms	F	significance
POST-TEST DATA											
ES-VII Progressive Scale (PROG)	$\bar{x}$	JHC 16.45	CEI 19.81	SHC 22.00	MULT 22.63	Participants	256.80	3	85.60	1.59	n.s.
						Error	2148.93	40	53.72		
						Total	2405.73	43			
ES-VII Traditional Scale (TRAD)	$\bar{x}$	CEI -1.81	MULT 1.63	JHC 10.27	SHC 13.45	Participants	1692.43	3	564.14	6.57	$p < .10$
						Error	3436.00	40	85.90		
						Total	5128.43	43			
Career Exploration Scale (CES)	$\bar{x}$	CEI -2.90	MULT -2.27	JHC -.82	SHC -.45	Participants	44.97	3	14.99	.93	n.s.
						Error	643.46	40	16.09		
						Total	688.43	43			
Change Orientation Scale (COS)	$\bar{x}$	MULT -3.72	SHC -3.54	CEI -3.45	JHC -1.09	Participants	45.62	3	15.20	2.02	n.s.
						Error	300.29	40	7.50		
						Total	345.91	43			
PARTICIPANT GAIN SCORES ON SURVEYS											
ES-VII Progressive Scale (PROG)	$\bar{x}$	JHC 1.00	MULT -.36	CEI .64	SHC 5.82	Participants	317.99	3	105.99	4.81	$p < .10$
						Error	880.74	40	22.01		
						Total	1198.73	43			
ES-VII Traditional Scale (TRAD)	$\bar{x}$	MULT -1.36	CEI -.18	JHC 1.18	SHC 4.54	Participants	215.35	3	71.78	1.69	n.s.
						Error	1694.56	40	42.36		
						Total	1909.91	43			

Table 2.--Continued

Assessment Instrument	Multiple Comparison Participant Groups and Mean Scores					Analysis of Variance Summary Tables Source	SS	df	ms	F	significance
Career Exploration Scale (CES)	$\bar{x}$	JHC -1.27	SHC -1.00	CEI .54	MULT .73	Participants	35.16	3	11.72	.48	n.s.
						Error	973.09	40	24.32		
						Total	1008.25	43			
Change Orientation Scale (COS)	$\bar{x}$	CEI -1.90	SHC -1.64	MULT -.90	JHC 1.54	Participants	81.63	3	27.21	2.43	n.s.
						Error	447.10	40	11.17		
						Total	528.73	43			
SURVEY GAIN SCORES PER PARTICIPANT GROUP											
Participant Group	Assessment Scales and Mean Scores										
Career Education Institute Participants (CEI)	$\bar{x}$	COS -1.90	TRAD -.18	CES .54	PROG .64	Assessment Scales	45.90	3	15.30	.75	n.s.
						Error	807.83	40	20.19		
						Total	853.73	43			
Multiplier Group (MULT)	$\bar{x}$	TRAD -1.36	COS -.90	PROG -.36	CES .73	Assessment Scales	26.79	3	8.93	.64	n.s.
						Error	550.19	40	13.75		
						Total	576.98	43			
Junior High Control Group (JHC)	$\bar{x}$	CES -1.27	PROG -1.00	TRAD 1.18	COS 1.54	Assessment Scales	69.88	3	23.29	.91	n.s.
						Error	1016.55	40	25.41		
						Total	1086.43	43			
Senior High Control Group (SHC)	$\bar{x}$	COS -1.64	CES -1.00	TRAD 4.54	PROG 5.82	Assessment Scales	475.88	3	158.62	3.91	$p < .10$
						Error	1620.92	40	40.52		
						Total	2096.80	43			

An underlining technique was used to represent the results of the multiple comparison analyses. The first statistically significant difference shown in Table 2 was between teacher groups on the ES-VII Traditional Scale. The mean pre-test scores were first arranged in order of magnitude from the lowest to the highest. Next, a continuous line was drawn under all those mean scores that were not different from each other--in this case, the MULT, SHC, and JHC groups were not different, nor were the CEI and MULT groups. However, significant differences were illustrated by a break in underlining or where underlining was missing. This multiple comparison showed that the MULT, SHC, and JHC groups scored significantly higher than the CEI groups (MULT, SHC, and JHC are underlined, CEI is not), and that the CEI and MULT groups scored significantly lower than either the SHC or JHC groups (CEI and MULT are underlined, SHC and JHC are not). This technique also illustrates no differences between any of the groups on any of the other pre-tests (all of the group scores are underlined for each multiple comparison).

This analysis of pre-test scores showed that the CEI group was less "traditional" than any other group and that all project participants (CEI and MULT) were less "traditional" than either of the control groups before their involvement in the project. This does not support the notion that all groups were similar at the beginning of the project. Since both participant groups were specially selected, they were not expected to be similar to the "average teacher." It seems that the selection procedures used identified less traditional teachers for the project.

The post-test data identified statistically significant differences between groups on the same scale as the analysis of pre-test data found. The mean post-test scores of the CEI and MULT groups were significantly lower than either the JHC or the SHC groups, and the JHC and SHC scores were significantly higher than either the CEI or the MULT groups. Post-test scores were thus not too different from the pre-test scores - the only difference was that the MULT group became more similar to the CEI group than the JHC and SHC groups.

An analysis of gain scores showed that the SHC group score increased more from the pre-test to the post-test than did the scores of any other group. During the period of the project, therefore, the SHC group became more progressive than any other group, as measured by the ES-VII Progressive Scale.

The final analysis summarized in Table 2 compared the gain scores on each assessment instrument for each of the control and participant groups. The only statistically significant finding came with the SHC group. Their gain scores on the CES, TRAD, and PROG were higher than their gain on the COS, and their gain on the COS and CES were less than the gains registered on either the TRAD or the PROG.

B. Survey of Participant Reactions

In addition to measurement information collected from the attitude survey, participant reactions were solicited at the conclusion of each of the three one-week sessions. Reactions and observations were also recorded from the staff who directed the activities of each session.

Week 1 of the CEI

Week 1 of the Institute was designed to increase the participants' awareness of the world of work and means to collect career information through the use of instructional media. Initial reactions expressed concern for direction in terms of participant expectations. All were enthusiastic and felt they had gained knowledge about work; however, they also expressed hesitance regarding their future commitment to career education. Typical written comments included: "More time should be given for development of materials to be actually used in the schools;" "You could feel the excitement throughout the week;" "I'll tell anything and everything to assist students in choosing a career;" "Except field trips, what else can help students with career information?"

Week 2 of the CEI

Week 2 of the Institute was planned to give the participants intensive training in curriculum development. Both positive and negative reactions were expressed during the week and several weeks following. Two participants resigned from the Institute at the conclusion of this phase; two more finished the program but did not complete the required career education curriculum unit. Many of the teachers felt initially that the TRACE (Thematic Resources and Activities for Career Education) curriculum units were too exacting to be functional. However, they soon discovered their instructional utility, and all but two of those written were implemented and subsequently evaluated by their writers. Examples of these curriculum units and their evaluation results have been included in a supplementary booklet to this report (see Volume III).

Some measurement data was gathered by the staff for this part of the Institute. Instrumentation was designed to assess participants' knowledge of certain curriculum concepts and specified materials for instruction. Table 3 summarizes this data.

Table 3.--Summary of Assessment of CEI Participants' Knowledge of Curriculum Concepts and Materials for Instruction

Content Area	Pre-test	Post-test	Independent t
Curriculum Concepts	$\bar{X}$ = 53.61 s.d.= 17.19 n = 21	$\bar{X}$ = 71.31 s.d.= 14.23 n = 16	3.33* (critical t=±2.04) * p<.05
Materials for Instruction	$\bar{X}$ = 80.52 s.d.= 16.20 n = 17	$\bar{X}$ = 93.76 s.d.= 10.17 n = 17	2.85* (critical t=± 2.04) * p<.05

In both content areas, there was a significant increase in participants' knowledge about curriculum concepts (such as individualized instruction, behavioral objectives, career education, and TRACE units) and about materials for instruction (such as microfilm, field trips, remote access, and movies). There were some items identified by teachers as least familiar items on the pre-test that were also identified as least familiar on the post-test. Thus, it appears that teachers' familiarity with these concepts was not increased as a result of participation in Week 2 activities (examples of these items included voucher plan, systems analysis, educational park, and national assessment).

Two evaluation forms were completed by participants for this week of the Institute - one rated the specific activities and the other rated certain statements about curriculum development. Table 4 summarizes the major findings of these assessments.

In general, most participants thought that most activities were appropriate and applicable to their instruction, and although the discussion of TRACE formats was not rated very highly, the actual TRACE preparation was regarded as an excellent activity. The Barnabei and Leles worksheets were entitled, "Educational Behavioral Objectives Worksheets," and were used to help participants identify indicators and distinguish between behavioral and non-behavioral objectives. This was not rated very highly either, but according to the development of TRACE units, was found to be useful in preparing behavioral objectives.

Table 4.--Summary of Assessment of CEI Participants' Evaluation of the Second Week of the CEI

High Rating	Low Rating
Evaluation of Activities	
1. Actual preparation of TRACE curriculum unit	1. Presentation, discusssion and homework on TRACE format 2. Bernabei and Leles Worksheets
Evaluation of Curriculum Development	
1. What I've learned in this workshop will be useful to me in my teaching	1. Knowing the objectives of this workshop did not make it easier for me to do what was expected of me. 2. The instructional procedures used in this workshop were "bookish" and not appropriate to the activities assigned. 3. The competency-based measurement procedures used in this workshop were confusing.

Similarly, most participants thought that most of the curriculum development statements reflected their feelings; their feelings can be summarized by their indication that they would find value in and would participate in another similar program. However, this kind of information is very subjective and may better reflect participant perceptions of staff desires rather than the true attitudes of the teachers.

Week 3 of the CEI

Week 3 of the Institute was designed to deal directly with affective concerns related to interpersonal relations and encouraging the implementation of career education activities throughout a school building. The emphasis of this week was on psychological education and the Human Development Program (HDP). Testimony to the value of this phase of the program rests with the fact that almost half of the participants elected to take a follow-up course on their own time and at their own expense to obtain proficiency in HDP

techniques. In addition, approximately 100 HDP "Magic Circles" were conducted by this group during the nine weeks which remained in the school year. They also used some of the simulation games and group process strategies introduced.

General Observations

The more impressionistic and subjective information gathered from observations, anecdotal records, evaluation forms, and unsolicited feedback as part of the program side effects evaluation indicated other valuable findings. The participating teachers at the conclusion of the Institute showed an increased perception of career education; as one teacher summarized, "I no longer teach strictly for content." They also indicated that both they and their students were more aware of career possibilities, kinds of career information, and sources of that information.

Nearly all teachers acknowledged increased knowledge and skill in the use of instructional media and its corollary use in the classroom. In fact, the use of media was found to be a linkage between school and community. The participants were both amazed and gratified over the community cooperation displayed when they sought local assistance in developing instructional media relating to the several career clusters.

There was much evidence to suggest that teacher-student communication had improved as a result of the Institute. Several teachers expressed the feeling of gains in self-awareness, and as a result, increased student awareness. As one teacher stated, "I've never enjoyed teaching more." In addition to increases in self-awareness, there was also an increase in self-confidence: "I've done more individualized work and tried new ideas that I was afraid to attempt before." Probably the most representative statement summarizing teacher reaction was, "It gave me a chance to stand back and evaluate what I was doing and why I was doing it." Counselors, too, began to re-evaluate their roles and began to perceive themselves as "more of a resource person to teachers."

Although the participants had an apparent commitment to the Institute, in some cases this was only an overt, verbal expression. Project staff found it difficult to maintain, through follow-up service, the high levels of enthusiasm demonstrated during the three one-week sessions. However, the staff generally found both rewards and frustrations in working with the program and the participants. Overall, the staff agreed that every participant demonstrated some growth as a direct result of their involvement in the Institute, but all of the goals and objectives could not be achieved with all of the participants.

The Multiplier group teachers apparently had a higher degree of interest and commitment to the program. This could have been a function of more selective identification procedures for Phase II participants, encouragement from colleagues in Phase I to participate, or better organization of project staff.

The originally designed team approach, including teachers, aides, and counselors from one building was not perceived to be of much benefit. Participants tended to function as individuals rather than as teams. This could have resulted from the tradition of self-contained instructional units in participating districts, the inability or failure of project staff to instill a cooperative team spirit, or the prematurity of encouraging cooperation before a true understanding of the concepts of career education had been developed.

An example of continued interest in the Institute by three of the original participants was demonstrated by their choice of career education as a topic for graduate course term papers. Three others registered in an independent career education graduate course at a local college.

Participants in the Multiplier group did not develop TRACE units as part of their regular program; however, two members of this group did see enough value in this activity to seek staff assistance in developing TRACE units on their own time.

The initial instructional media program for the CEI group resulted in the production of video tapes (career exploration activities in a greenhouse, bank, dairy, foundry, and vocational-technical school), slides, and 8mm films. As a result of the Institute, other media were produced, including a video-taped interview with a flight engineer, slides of soil conservation activities, and recordings of various sounds of local industries. Also, a set of six video tapes was made to complement the Community Resource Guide (see Volume IV).

One elementary teacher developed a complete Career Alphabet with corresponding letters and careers. Many of the letters were constructed for a three-dimensional effect, including textured surfaces. A supplementary set of slides was also produced.

A three-dimensional model of the 24 "cubes" of the Pennsylvania Career Development Model was constructed by project staff. This model was used to facilitate an explanation of career development as presented in the Pennsylvania Career Development Guide.

A Case History

An example of the impact of the Institute on an individual teacher may illustrate some of the successes of the project. Teacher A, a middle-aged female third grade teacher, entered the program expressing a genuine concern for improving her teaching skills. She attended the first week of the Institute faithfully, and, although health problems prevented her from participating as enthusiastically as her colleagues, she completed the taxing program of media production.

The second week, with its emphasis on curriculum development, brought frustrations with curriculum theory and behavioral objectives. With much writing and re-writing, she attained mastery in developing a TRACE unit. A simulation game, "Market," was suggested for her use in the classroom which was ordered through project funds. She was asked to demonstrate this game during the third week of the Institute.

The demonstration of this game during the last week of the project was almost catastrophic, but it provided practice and served to illustrate how to and how not to use gaming in the classroom. A video-tape was produced to show how this game operated and to demonstrate good management for using simulation games in the classroom. Later in the year, during an evening Parent-Teacher meeting, Teacher A and her team members shared career education experiences and featured a third grade student explaining the "Market" game.

HDP training was also provided during the third week. Teacher A used the "magic circle" enthusiastically in her own classroom to fulfill several of her own elementary guidance objectives.

A self-evaluation of her growth in career education and improvement in teaching skills led Teacher A to request time from her building principal to establish an assembly line production to introduce her building colleagues to career education. She also prepared a grade level segment for a district-funded career education curriculum guide.

Conclusions:

(1) A "hurried" recruitment and selection process resulted in a number of participants who were subtly coerced into the program.

(2) Participant teachers K-12 readily accepted the rationale supporting the need for career education programming in a comprehensive school program.

(3) A more highly motivated group of "second generation" participants was identified, although the staff was not able to conclude that any one factor contributed exclusively to this outcome. Our "best guesses" suggest that several factors may have influenced this: (a) peer rather than administrative selection; first generation selector had just completed the training process - therefore, knew what was expected of participants (b) a much shorter training period with fewer requirements.

(4) Group interaction among and between participants from three different school districts facilitated the training process.

(5) Participant support staff (i.e. teacher and counselor aides) did not function effectively in supporting the teachers in the implementation of their units. This apparent weakness may be attributed in large part to the omission of a specific training module designed for aides.

(6) The teaming approach (four teachers, a counselor, and an aide) therefore appeared useless in relation to the implementation of curriculum units, however, the "security of numbers" appeared to bolster the confidence of the participancs as they attempted to effect change in the attitudes toward the need for career education of their non-participant peer group.

(7) The utilization of intensive, week-long training sessions, with participants free from other teaching and related duties, was extremely helpful in sustaining interest levels.

(8) The scheduling of three week-long sessions, with at least a four-week interval between sessions, also was concluded to have been better than trying to do all initial training in a three-week block.

(9) Community support for career education was reflected in the cooperative spirit of business and industry personnel throughout the project region.

(10) A curriculum infusion model appears to be a viable change agent strategy for introducing career education elements into a school.

(11) The assessment strategies used to measure the project's impact on teachers and other staff were not adequate.

(12) The subjective evaluation of the project by the educator participants was more conclusively positive than the objective data analysis.

(13) Project participants displayed significant improvement in the project content areas of curriculum concepts and instructional materials.

Recommendations:

(1) An improved screening process should include a commitment by the teacher and his administration to the program's goals and activities.

(2) Former Institute participants should be included in the identification and selection of applicants.

(3) A separate training module should be developed for support personnel, i.e., teacher aides and librarians.

(4) A modified teaming approach should be maintained in each district utilizing both former and "new" trainees.

(5) The intensive workshop schedule should contain 4-5 day "blocks".

(6) The 3-4 week intervals between the 4-5 day "blocks" should be maintained to afford staff and participants maximum opportunity to field test program content and methods.

(7) An assessment package to measure the project's impact should include more sensitive educator instruments; also, more attention should be given to the measurement of the project's effect on students using design models and instrumentation from the U.S.O.E.'s Guidelines for Evaluating Career Education Projects.

INTRODUCTION:

The following career education curriculum unit was developed to be used during three one-week inservice training sessions for K-12 educators (teachers, counselors, administrators, and para-professionals). This training was designed to be supplemented with supportive services during local implementation efforts of developed curriculum.

This unit emphasized the Pennsylvania Career Development Model and the USOE cluster concept. It was field tested in 1973-74 with three participating districts.

This is what 73-74 was all about!
This is the model developed in Year 1;
testing of this model will occur in Year 2
(Pending 2nd year funding).

Note: A shorter modified version of three-week plan may be accomplished by use of starred (*) items within a three-day period.

I. Objectives:

A. Goals

*1. To improve participants scope of career education concepts.

*2. To increase participants' committment to career education.

3. To produce classroom usable media.

*4. To increase participants' career education strategies and techniques.

5. To develop career education curriculum units.

B. Behavior Objectives (Code=Goal)

1. Given opportunity to interact and participate in activities, functional systematic change agent personnel will develop as measured by observed cooperation and planning. (G 1)

2. Following instruction in media techniques of 8mm, 35mm, and video-taping, each team will produce at least 3 units of classroom usable media. (G 3)

3. After filming in actual work situations, participants will acknowledge the importance of community involvement as a classroom resource as recorded on subjective evaluations. (G 1 4)

4. Given instruction in writing behavioral objectives in the Mager format, provided relevant examples of behavioral objectives from each domain of behavior, and having read materials on the domains and levels of behavior, each workshop participant will (a) demonstrate competency in writing behavioral objectives by preparing three original objectives in the Mager format for any level of each of the domains of behavior, and (b) demonstrate competency in using the levels of the domains by writing an original behavioral objective in the Mager format for the third level of each of the domains of behavior. (G 5)

5. Provided instructions on curriculum theory, shown relevant examples of curriculum units, and given a standardized format for the CSIU curriculum units titled Thematic Resources and Activities for Career Education (TRACE), each workshop participant will demonstrate his/her ability in curriculum development by preparing an original curriculum unit that contains, as a minimum, all of the components listed in the standard format and is suitable for implementation in their classroom (or in a classroom within their school). (G 1 5)

6. Following sessions dealing with the career concept, the career cluster concept, and other concepts related to career education, and given the state of Pennsylvania career development education model (K-12), each workshop participant will: Choose a minimum of two of the "concerns" in the state career development model to concentrate on and develop objectives, student learning activities, and evaluative procedures for use in their TRACE, and develop as a minimum one each of the following: (1) Behavioral objectives, (2) Concept or generalization, and (3) Student learning activity for the learning domains of vocabulary, cognitive, affective, and psychomotor. (G 1 5)

7. During the course of the workshop week devoted to career education curriculum development, each workshop participant will display an interest in career education and demonstrate the social values of responsibility, honesty, and cooperation by volunteering his expertise in developing curricular materials, completing the competencies requested, and assisting in team-oriented efforts. (G 1 2 3 4 5)

8. After HDP training, participants will exhibit mastery of elementary techniques and concepts as measured by satisfactory demonstration

of leadership within a magic circle. (G 4)

9. After value clarification activities, participants will assimilate new strategies for dealing with other faculty members as evidenced by inclusion of such techniques in future plans. (G 4)

10. After training experiences, each participant will make verbal committment of their personal and team plans for career education implementation in local district as recorded by CEI staff. (G 2)

11. During the workshop, each participant will participate in at least one activity, designed for student use in each of the 6 concerns, as measured by staff observation and completed activity idea sheets. (G 4)

12. After workshop training, participants will increase their orientation toward change and improve their knowledge of career education as measured by gain scores of CETCA. (G 1)

II. Concepts and/or Generalizations:

1. Career Development occurs according to Pennsylvania Career Development Model.
2. Experiencing activities facilitates implementation of Career education in classrooms.
3. Career education is for all pupils.
4. In-servicing produces implementation of Career Education.
6. Curriculum planning unifies Career education activities.

III. Subject Matter:

A. Vocabulary terms:

1. career education
2. cluster (15)
3. learning station
4. awareness
5. exploration
6. preparation
7. HDP

8. domains
9. concerns
10. TRACE

B. Basic Academic Skills to be Developed.

1. Applications to all subject matter will be emphasized.

C. Careers Related to the Thematic Unit grouped by Cluster.

1. All 15 clusters will be covered.

IV. Student Learning Activities: (Code=Concern/B.O

A. Motivational Activities

Phase One

* 1. Sharing of career education films. (8 12 6 12)
* 2. Introduction activity of first names in accumulative manner (b 9)
3. In-service credit explainations.

B. Subject Matter Learning Activities:

* 1. Diad introduction activity. (B 4 8)
* 2. Consenses building exercise (Good qualities of a teacher.) (B 8 11)
* 3. Demonstrated lesson of Career Insights and self-awareness. (Decision-making) (B 11)
* 4. Presentation of Career Education Theory (B 6 12)
* 5. Presentation of Pennsylvania Career Development Model and Guide (B 6)
6. 3-day HDP training (Self) (B 9 11)
* 7. DUSO demonstrated lesson. (Self) (B 11)
* 8. Playing "Market" simulation game. (Economics) (B 11)
9. Making of personal coat of arms for deciding course. (Decision-making) (B 11)

Phase Two

* 1. Diad introduction activity. (b 4 8)

10. 2-day media instructional session consisting of learning stations or 8mm and 35mm career techniques, video-tape production, editing, transparency production, audio techniques as usable by students and teachers in educational situations. (B 2)

11. Filming (by selected media) actual work situation by each team with emphasis on the workers not the process. (B 3)

12. Viewing of produced media with peer critiquing of content and technique (B 4)

13. Sharing of off-chute learning occurring by visit to industry. (B 4)

14. Demonstrated career educational advisory committee meeting. (B 3)

15. Reading of community advisory handou (B 3)

* 16. Presentation of clustering concept (B 12)

* 17. Playing of music and categorizing of realted careers by clusters (career) (B 11)

* 18. Participants using of CSIU 16 Career information service request card (Career) (B 11)

* 19. Search for specified educational levels of jobs in commercial brief files (education) (B 11)

20. Playing of Life career game (B 11)

21. Demonstration lesson of Chronicle Guidance PWAK (Careers) (B 11)

* 22. Completion of activity idea sheet. (B 11)

* 23. Interview of workers for leisure time activity (Leisure) (B 11)

24. Use of Environmental Learning Station (B 11)

* 25. Tour of resource center on display of Career education materials. (B 11)

Phase Three

* 26. Presentation of curriculum theory. (B 5)

27. Reading of Mager's Preparing Instructional Objectives, and/or Bernabei and Lales Worksheets. (B 4)

28. Writing of original behavioral objectives (B 4)

29. Reading of handout of domains of behavior. (B 4)

30. Presentation of TRACE outline and examples. (B 5)

C. Correlating Activities

1. Implementation of ideas in classrooms.

D. Individual Study Activites

1. Personal tutoring by staff as needed.

2. Critiquing and rewriting of TRACES.

3. Reading of Hoyt's Career Education What Is It.

4. Home work of assigned readings.

E. Culminating Activity

1. Writing of TRACE units by participants

V. Evaluation

A. Evaluation of student achievement of stated objectives.

1. Observation of participant interaction behavior.

2. Presence of prepared media, TRACES, plan of action for future use.

3. Subjective evaluations.

4. Written Behavioral Objectives.

5. HDP - leadership observation.

6. Completion of idea sheet.

7. Pre and Post Test of CETCA.

8. TRACE Standardized Evaluation Form.

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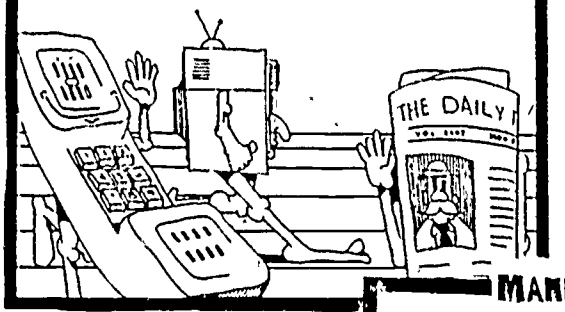
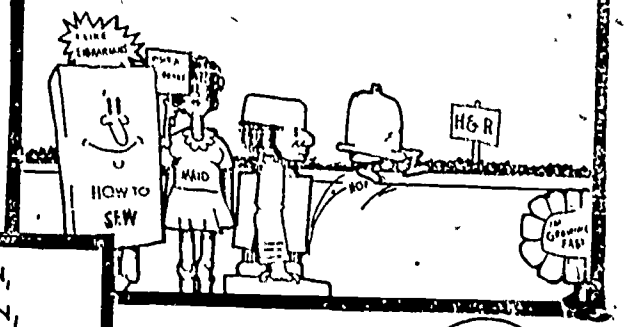
COMMUNICATIONS AND MEDIA

NEWSCASTERS, PHOTOGRAPHERS, ARTISTS (COMMERCIAL), EDITORS, OPERATORS, CAMERA TECHNICIANS, LINEMEN, WRITERS.



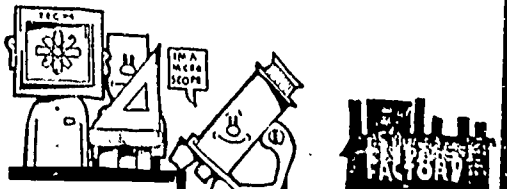
HOSPITALITY and RECREATION

COOKS, MAIDS, WAITERS, WAITRESSES, HOTEL & MOTEL MANAGERS, DESK CLERKS, BELL HOPS, PARK RANGERS, THEATER OPERATORS, LIBRARIANS.



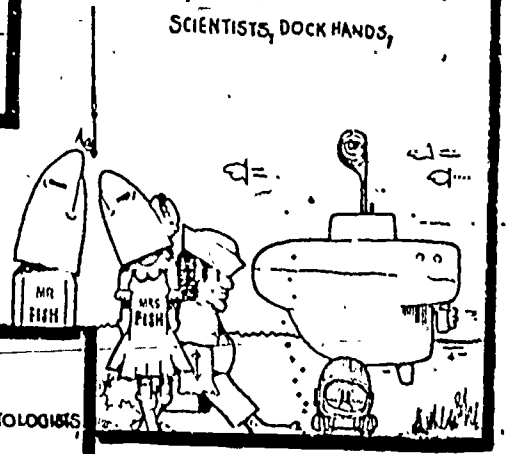
MANUFACTURING

ELECTRONICS TECHNICIANS, DRAFTSMEN, ENGINEERS, SCIENTISTS, JOURNEYMEN, ASSEMBLY LINE WORKERS.



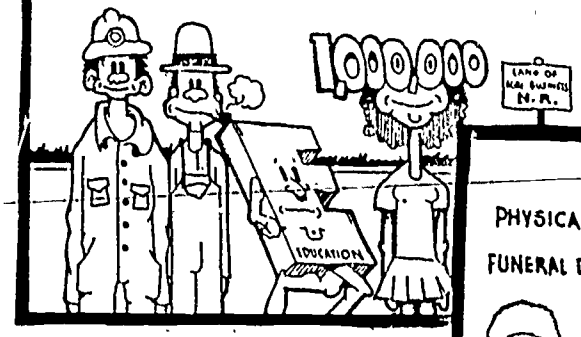
MARINE SCIENCE

OCEANOGRAPHERS, FISHERMEN, LABORERS, BOAT HANDLERS, DIVERS, LAB TECHNICIANS, SCIENTISTS, DOCK HANDS,



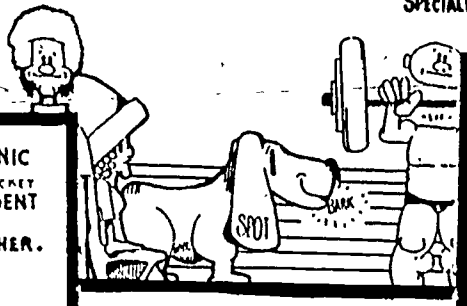
AGRI-BUSINESS / NATURAL RESOURCES

LUMBERMEN, MINERS, FARMERS, FORESTERS, ENGINEERS, GEOLOGISTS.



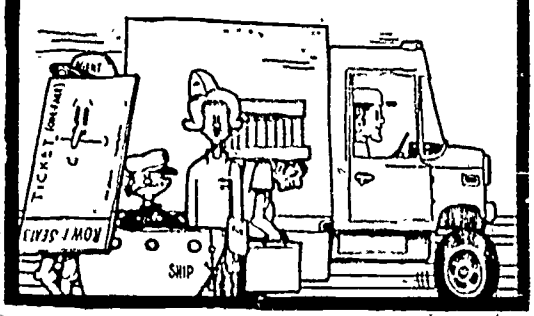
PERSONAL SERVICE

PHYSICAL CULTURISTS, BARBERS, COSMETOLOGISTS, FUNERAL DIRECTORS, KENNEL OPERATORS, EXERCISE SPECIALISTS.



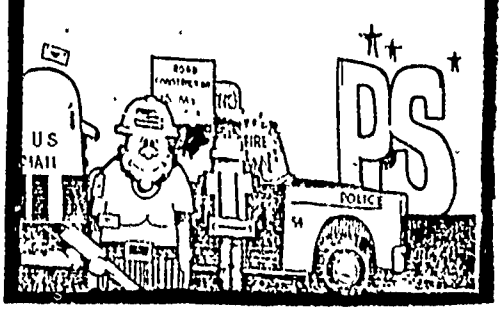
TRANSPORTATION

PILOT, BUS DRIVER, STEWARDESS, MECHANIC, TICKET AGENT, SHIP CAPTAIN, TAXI DRIVER, TRUCKER, BAGGAGE CLERK, ENGINEER, DISPATCHER.



PUBLIC SERVICE

TEACHERS, CITY OFFICIALS, POLICE, FIREMEN, SERVICEMEN (ARMY, NAVY, AIR FORCE, MARINE) POSTAL EMPLOYEES, HIGHWAY EMPLOYEES



Central Susquehanna Intermediate Unit
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