DOCUMENT RESUME

ED 313 097 JC 900 013

TITLE	TACSE Research Annual; Volume 4, Number 1, Fall 1988.
INSTITUTION	Texas Association for Community Service and Continuing Education.
PUB DATE	88
NOTE	63p.
PUB TYPE	Reports - Descriptive (141) -- Tests/Evaluation Instruments (160)
JOURNAL CIT	TACSE Research Annual; v4 n1 Fall 1988
EDRS PRICE	MF01/PC03 Plus Postage.
DESCRIPTORS	Adult Education; College Programs; Colleges; Community Colleges; *Community Services; *Continuing Education; Curriculum Development; Energy Education; Higher Education; Institutional Survival; Salaries; School Personnel; State Surveys; Teleconferencing; Two Year Colleges; Universities
IDENTIFIERS	*Texas

ABSTRACT

This collection of research reports focuses on recent studies conducted by practitioners in the fields of public service and continuing education in Texas colleges and universities. "What It's All About," an editorial by David Wells, explains the balance colleges must maintain between serving their community and remaining fiscally stable. "Leadership for Continuing Education: A Call for Solid Footing," by Joe B. Rushing, examines the need for leaders in continuing education to move comfortably in both the world of academe and the world of work, service, and production in order to meet the needs of an increasingly technological nation. "Teleconferencing: The Window in the Ivy Covered Wall," by Darlyne Ervin and Karen Johnson, addresses the increasing use of teleconferences by community colleges to cost-effectively expand their educational systems. A questionnaire used to investigate the involvement of Texas community colleges in teleconferencing is included. "Developing a Curriculum for Continuing Education in Petroleum Technology," by William A. Dexter, describes Richland College's current and proposed petroleum technology courses. Finally, "1987 Personnel Profile/Salary Survey and Institutional Profile," by Howard W. Smith, Jr., and Kathy Jackson, reports on a comprehensive statewide survey of continuing education staff, salaries, and programming. (VVC)

Foreword and Acknowledgments

Howard W. Smith, Jr.
Chair, Research Committee
Professor and Director
Office of Policy Studies in Higher Education
University of North Texas

This fourth volume of the TACSCE Research Annual represents both a culmination and a continuation of the goals of the TACSCE Research Committee and the leadership and members of the association. The very existence of a Research Committee is a manifestation of the commitment of TACSCE to the concept of research as an integral element of public service and continuing education, and the Research Annual is the physical evidence of that commitment.

From its inception, the principal thrust of the Research Committee has been to foster and encourage the creation and use of research by professional practitioners in a field of public service and continuing education--especially members of TACSCE. That initial purpose is reflected to the highest degree in this fourth volume of the Research Annual as both the winner and runner-up papers for the president's Award are products of practitioners and members of TACSCE. This is what it's all about.

In addition to the winning and runner-up papers, this volume of the Research Annual includes a Perspectives article by Dr. Joe Rushing, a long time friend of continuing education; an editorial by David Wells, the editor of the 1988 Research Annual, and the 1987 salary/personnel survey and the institutional profile. Because of the length of these materials, the book reviews, article reviews, and annotations of pertinent research which are ordinarily published in the annual have been omitted. Sincere appreciation is extended to those named above and the Research Committee members who contributed to this publication. A special thank you is extended to Dr. Jerry Springfield for his service as chair of the President's Award Sub-Committee, and to Drs. Carl Davis and Leon Hallman from Stephen F. Austin State University and Athena Russell of Tyler Junior College for serving as judges for this competition. Without the time, efforts, and talents of all of these people the publication of the 1988 Research Annual would not be possible.

While the Research Committee is very proud of this volume of the Research Annual, we do not want to rest on our laurels. We need your feedback and reactions to the Research Annual. Your comments, questions, and opinions are solicited. More than your

reactions, however, the Research Committee wants your participation in the life of the research activity of TACSCE. Membership in the Research Committee is open to every TACSCE member, but even if you are not a member of the Research Committee you are encouraged to submit reviews, articles and research annotations, and, above all else, submit your research projects to the President's Award competition. When TACSCE members are winners, TACSCE is a winner.

TABLE OF CONTENTS

WHAT IT'S ALL ABOUT

David A. Wells
Tarrant County Junior College
Fort Worth, Texas

What it's all about is the care and feeding of cows, right?

Isn't our job simply to get successful programs out there before the public, enroll at least enough students to recover the cost, and make some extra money? Reduced to its lowest common denominator, isn't that it? I mean, we can go on forever about meeting the needs of people and the community and serving mankind, but in the final analysis, the success of the program is based on bucks and bodies. Given this attitude, a program that generates extra dollars and enrollments for contact hours is everything we need.

I believe that many of our peers in academia would believe the above to be strictly true of the activities of a continuing education program. From their perspective the efforts of a CE program may be just that; a money making sideline, an auxiliary mechanism an enterprise like the bookstore. As J. Alfred Prufrock remarked: ". . . an easy tool,/Deferential, glad to be of use,/Politic, cautious, and meticulous;/Full of high sentence, but a bit obtuse;". Would they believe this of you and the program you work in? If they do, it will be because you have allowed them to.

Just for a moment, let's take a look at yourselves. Yes, we do measure good programs in terms of the dollars we generate from them. The most popular break-out sessions that you will attend at the TACSCE annual conference and other similar conferences will be those telling you how to make a buck. For our well-being and continued operation, it is in our interest to have these "cash cows". We are not alone in this. Credit programs have their herd as well: Freshman English, Texas History, Psychology 101, Sociology 100. They too have classes that have a low expense / high income ratio. They have to have them just like we do. They have to support a humanities program that might not pay its way, for instance, because almost no college would be caught dead without one. We are fairly familiar with this symbiotic relationsnip in the academic world; we all talk about it with regard to our example of humanities programs. We all have our cash cows; we all need them. In continuing education, what we don't talk much about is the fact that they allow us to keep secrets.

What you won't see mentioned at this or other conferences; what you won't see as a part of a board presentation on continuing education, what you won't see in the program offered to the

chamber of commerce are some of our activities that we as individuals are proudest of. At this conference, what you probably won't see are programs telling of the success of the sign language classes, which even though they lost money last year, helped people deal with deafness in the world: helped workers understand a deaf co-worker; helped a deaf parent "talk" to a child; helped a deaf child "hear" the words of parents. What you won't see are sessions about losing money because you added a class at the last minute in December because five nursing home medication aides were going to lose their jobs unless they got in their update classes before the end of the year, and you really needed ten students just to pay the teacher. What you won't see are sessions about the program you offered to increase adult literacy levels and let make with two people when you really needed twelve just to break even, but you made it anyway, and hoped no one ever checked your books closely enough because you were quite sure you could never explain it well enough. And besides, if anyone else knew you did that, it might spoil the image you have created of yourself as a break-even-at-least operator, risk-taker, entrepreneur tough guy continuing educator, by golly.

Malarky. Some of our finest moments come through programs we never talk about. Some of our greatest successes rise from the ruins of our most devastating failures. We keep these little bright spots to ourselves. Maybe we should. If we talk about these too much someone may come around and start telling us how we should be managing that money or that program. We know we can't solve the problems of the world. We know that we can impact only certain things. But we know, beyond a shadow of a doubt, that there are some things in our power to do -- what did I say at the beginning of this --, to ". . meet the needs of people and the community, and to serve mankind." We know what we can do and when should do it. And given the chance, we will.

But the board, or the chancellor, or the president needs to hear something about our secrets once in a while. It's a little like salt added to soup. Too much is bad, but just a touch is nice and will suffice. We need to know that we and the programs we work with are not just computers analyzing expenses and profits and making calculations and tossing away things that don't fit. We need to know that at any point in that entire process, we can reach in and pull something struggling for air to the top and let it breathe or we can influence our leaders to. We need to know that we can make the program human. The board, or the chancellor, or the president or your boss needs to know that too. Not that you are being reckless or careless, but that the program has compassion. And compassion may come from everyone who works in your operation.

No, the job is not as simple as I described it in the first paragraph. It has those characteristics about it, but it also has about

it a humanity that only you as a person can add. The people you work with can help humanize your program. I've made some programs that lost money because my secretary told me those people really needed the help. But the money I lost on those, I made on a cash cow somewhere else. This RESEARCH ANNUAL AND THIS ANNUAL CONFERENCE are good vehicles for sharing information and programs and secrets. I still probably don't do enough, but while I'm thinking about it, if you know of any strays that are good producers, send them my way.

In return, let me tell you about this group of people from Thailand, the Philippines, and Laos who were working in a plant assembling electrical parts, but they couldn't read the blueprints, see. Well, I thought I could do a special deal for the company and yeah, it was struggling too, so I cut my profit for them, we agreed on a price, and they bought the program. Turns out as soon as the class started, we found out it was going to cost twice as much--the families wanted in and . . . .

LEADERSHIP FOR CONTINUING EDUCATION: A CALL FOR SOLID FOOTING

Joe B. Rushing, Chancellor
Tarrant County Junior College /Fort Worth, Texas

The remark that one "has his/her feet on the ground" is usually meant to be complimentary. It implies the qualities of strength, solidity, and dedication to purpose. When considering the leadership required for continuing education in today's society, however, the phrase takes on another facet. WHERE those feet are placed becomes very important. For the leader in continuing education must move with ease between different worlds, worlds that vary widely in purpose, nature, and function. That movement must be done with confidence and steady footwork.

Continuing education is not a new phenomenon on the scene. It has been a part of every developing society. Its structure and location have been shaped by the environments it has served. Today, continuing education involves nine million Americans in programs run by the nations industries. Universities programs are growing. Schools, churches, and civic organizations are in the act. Continuing education thrives in community colleges. In the last four decades, this has become a major role for those two-year institutions that have genuinely embraced it as a part of their missions.

What leadership traits are required of continuing education leaders that are not required of others in the educational community? None, really, except that the latter may survive, although not thrive, on tradition while the continuing education component must be more proactive in addressing the issues and needs of its constituents.

The emergence of the "information society" has placed education in the spotlight of the nations economy as never before. On every hand, leaders of business and industry call for improvement and responsiveness of the educational enterprise without which they, and the nation, cannot expect to remain as world leaders. Educational leaders are issuing reports on every hand about the status of American education and the critical need for reform. There are dire predictions that unless dramatic and immediate change takes place, the United States is destined to become a third world country. Since 1980, no fewer than 20 major reports have identified the shortcomings and needs of American education. These reports contain a cumulative total of 285 recommendations, with no consensus on their priority order.

Can a social institution as large and complex as the American system of education respond quickly to what is described as a critical condition?

Probably not as a whole, but one segment, continuing education, has the characteristics to do so. In general, its leadership is not hampered down with the trappings of tradition that prove extremely hard to change or shed. It will be that leadership that must move freely in both the world of academe and the world of work, service, and production.

The successful continuing education leader of the 90's will move comfortably in several arenas; the college campus, community organizations, and corporate offices. It is the confident, diplomatic, and sure-footed stance in all areas that will provide the basis for mutual acceptance, trust, and respect that is necessary for cooperative partnerships.

An understanding of the dynamics of partnerships will set the leader apart. Continuing education is a "many splintered" thing, and all its facets have their own importance. It will be the partnerships with business, professional, and other elements of the economy that have the most direct impact on the community. This is also a delicate relationship that requires skills of organizing, negotiating and managing the partnership contract.

The ability to identify and interpret educational needs is a leadership trait of increasing importance. It goes beyond the identification and interpretation of requirement to members of the college family. A more difficult task is that of communicating with groups seeking solutions to problems through educational programming. Even sophisticated companies frequently have difficulty in defining their requirements, and it is here that the continuing education leader becomes a valuable consultant. His/her expertise then emerges as an asset to the client as well as the educational institution.

Effective leaders of the 90's will look beyond their own organizations for resources to utilize in meeting education/training needs. Most continuing education units will never have the resources to address every need they seek to meet. For that reason, there must be an ongoing search for resources, human, fiscal, and physical, that may be called upon when needed.

Finally, the continuing education leader must be able to perform an almost impossible task. While touching all the bases of a complex assignment, one foot at least should be firmly planted on "home plate". In the academic milieu, there is always the difficult job of balancing the nontraditional with the traditional. When continuing education is a part of a collegiate community this balance can never be taken for granted. The leaders of strong programs will be those who have solid administrative support, full access to the college infrastructure, and the respect of faculty and staff.

Common leadership qualities span the spectrum of human endeavors. A comprehensive program of continuing education serving a varied constituency requires all of them.

TELECONFERENCING: THE WINDOW IN THE IVY COVERED WALL

Darlyne Ervin and Karen Johnson
Odessa College
Odessa, Texas

Media guru Marshall McCluhan envisioned the world becoming a "global village" through the use of electronic media. Others simply say "it's time to open up the ivy-covered walls . . ." to introduce continuing education professional candidates as well as college students to new ideas, opportunities, and experiences via the use of satellites (College Satellite Network, 1988). Whatever the rationale, colleges and universities are seeing the need for use of innovative and attractive ways to present first-rate instruction to students in all subject areas – at a time when enrollments are declining and funds are disappearing (Rourke, 1987).

Teleconferencing, or the use of satellites and down-link facilities to receive and show programming concerning business, government, media, health, and education, is fast becoming the tool used to construct the "electronic campus." What began in the 1970's as a way to provide television to hundreds of villages in India has now progressed to a widespread and versatile educational system offering everything from graduate engineering degrees earned solely by use of satellite courses to live workshops addressing specific ways to use the small claims court system. The obvious advantage of having quality programming made available to any area plus the cost effectiveness of conferencing without excess travel expenditures have resulted in secondary institutions rushing to the "cutting edge" of satellite technology (Slade and Sanders, 1986).

Caught in this rush was this writer's institution, Odessa College, a two-year community college in West Texas. In the summer of 1987, the administration gave the continuing education area the charge to develop and implement a teleconferencing program. The initial interest for the program had come from the staff development committee on campus the year before when it had asked for funds to establish at least one down-link facility on campus to be used for various types of professional development programming for faculty and staff. The administration agreed that the

equipment could be well used not only for staff development activities, but for marketing different types of programming to the business community as well.

Located in a sparsely populated area, Odessa College is the primary provider of higher education for a twelve county area extending as far as three hundred miles to the Mexican border. Most of these rural areas depend on the college for whatever exposure they receive to new and innovative programming, whether for professional development or simply a college education. Administrators also saw the project as being a way to introduce up-to-date programming for the local business community, whose members had few opportunities and fewer dollars for economic development.

Equipment was purchased, a room designated and outfitted, and publicity activated. Membership to a national programming network was purchased to gain awareness of types of programming available.

Then, in September, teleconferencing was launched. Programs on various topics were scheduled monthly. But as the months progressed a pattern began to emerge. It seemed that no matter what the subject, promotion, or agenda, teleconferencing received no real support from either the campus nor business community. Free programs promoted on campus were no more successful than fee programs promoted with the local chamber of commerce. More and more dollars were invested in programming costs, with less and less income regained.

With this history, two directors in the continuing education office decided to poll other community colleges in the state of Texas to see if their experiences were similar. A questionnaire was prepared and sent to the academic dean or dean of instruction at every community college in the state. Those receiving the questionnaire were asked to forward it to the staffer handling the teleconferencing program if it was available on that campus. Then, these individuals were asked to respond to various questions regarding (1) the use of teleconferencing; (2) its primary function on campus; (3) the cost effectiveness of the program, and (4) the advantages and disadvantages it provided for the community college educator.

Of the 49 questionnaires on the mailing list (multiple campus systems received only one questionnaire), 31 responded, with 18 saying that they did use teleconferencing to some extent. In four of the schools, the program was

considered to be used strictly for credit use; in another four, non-credit staffers were in charge. One school specified both areas as having equal responsibility, while others listed the administration of the programs as being in the instructional media/learning resources department or the staff development office. The majority of the schools owned the down-link equipment, with only three looking to outside sources for rental.

The primary function of teleconferencing on fourteen of the eighteen campuses was for staff development programming for faculty/staff. Eleven of those same fourteen also marketed special programs to business and industry. Two institutions listed availability of the facility for community service as an important purpose of the program on those campuses. As indicated by this usage, the primary programming used on most campuses was targeted at educational development for staff.

Secondary interest areas were listed as successful in the following order: business topics, governmental issues, special interest programming for students, and health. In several cases the specific teleconference addressing literacy presented in the fall of 1987 was mentioned as very successful, while the series of American Association of Community and Junior College (AACJC) teleconferences was also very popular.

The cost effectiveness question was divided into three areas. Four of the eighteen institutions indicated that the program did pay for itself. Only one school reported that it had made any type of profit. Eight other colleges responded that they had lost money on the program, with the remaining five institutions either not indicating any answer or noting that they could not determine that answer at present. Only six of the eighteen responded affirmatively to the question about renting the facility to off-campus groups for their use. Of those six, three said the rental produced profit income and three reported it cost them money.

Finally, in discussion of the advantages and disadvantages portion of the questionnaire, several perspectives on the viability of the program began to emerge. Teleconferencing staffers listed three major advantages to using the technique. First, the ability to bring current, innovative, and quality programming to multiple groups and rural areas. Second, the ability to use the event to network and link community leaders, along with forging relationships with business and

industry was attractive for these educators. Third, teleconferencing as the inexpensive way to conference--billing the programs as ways to expose many more individuals to quality events for so much less time and monetary expense per person--seemed to represent to these individuals the most potential for economic justification of the programs.

The disadvantages seemed to fall into areas relative to the logistics of the technique rather than the philosophy or purpose. First, many reported difficulties with the scheduling and promotion of the teleconferences. Several reported frustration with little lead time for promotion o programming and impractical time schedules for the programs produced by the many teleconference networks. Others complained of the initial expense of equipment and facilities, along with the difficulty in securing staffers with enough technical knowledge to run the program. Another concern expressed often in the comments addressed the hesitancy on the part of attendees to use the phone and really participate in the intended interaction of the event. This lack of action resulted in a failure of one of the inherent components of teleconferencing--the interactive process within live satellite programming--and often resulted in the program becoming dull and passive. All of the problems with the use of teleconferences seemed to reflect a general frustration on the part of professionals trying to use a new instructional technique to its best advantage, but experiencing the start-up difficulties of a new program.

In general, what surfaced from this survey was a generally positive disposition toward use of teleconferencing both now and in the future. Community college educators in Texas seemed to see it as a valuable and necessary tool, although one they needed to become more comfortable with. Respondents cited the future of the technique as "varied and bright" (Chaney, 1988) and as an "access to a myriad of topics" (Jones, 1988). As on the Odessa College campus, most staffers over the state still believe in the use and promotion of the activity, although no one has discovered the key to making the program financially successful.

Nevertheless, once again community colleges in Texas have taken the lead in stepping out into new ways to service both the campus and business communities. As programming opportunities, equipment cost, and satellite availabilities become more competitive, the industry and technique may solve some of its own logistic problems. Community college

leaders will continue to refine its use and tailor it to the specific populations that they serve. Classrooms on campuses all over the state are opening up to state-of-the-art programming through the use of satellite equipment, and each institution is taking its place in McCluhan's "global village".

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TELECONFERENCE QUESTIONNAIRE

PLEASE RETURN QUESTIONNAIRE BY MARCH 18

PLEASE CIRCLE YOUR RESPONSE

1. Yes No We do participate in teleconferencing on this campus.

PLEASE CIRCLE THE NUMBER CORRESPONDING TO YOUR RESPONSE

2. The department on campus that coordinates teleconferencing is:

   1. Credit instructional area
   2. Non-credit/Continuing Education
   3. Other, please specify _____

3. The coordinator of teleconferencing on this campus is

   _____

   Name Title Phone

4. Our teleconferencing facility is comprised of:

   1. Equipment we rent when necessary
   2. Equipment owned by the college

5. Teleconferencing is primarily used on campus for:

   1. Programming for students in credit areas
   2. Staff development for faculty/staff
   3. Special programs marketed to business/industry
   4. Other _____

6. The most successful teleconferences on our campus have been concerned with the topics of:

   1. Business
   2. Health
   3. Governmental issues
   4. Educational programming for staff
   5. Special interest programming for students
   6. Other_____

7. The least successful teleconferences on our campus have been concerned with topics of:

   1. Business
   2. Health
   3. Governmental issues
   4. Educational programming for staff
   5. Special interest programming for students
   6. Other_____

8. What do you see as the biggest advantage to using teleconferencing on your campus?

_____

9. What do you see as the biggest disadvantage to using teleconferencing on your campus?

_____

10. Do you rent your teleconferencing facility to off campus groups for their use?

	If yes, do you make a profit?
1. Yes	1. Yes
2. No	2. No

11. What do you see as the future of teleconferencing on your campus?

_____

_____

12. Is your teleconferencing program financially successful?

    1. Yes, the program pays for itself
    2. Yes, the program pays for itself and makes a profit
    3. No, we have lost money on the program

13. Please list your most successful teleconferences:

_____

14. Please list your most unsuccessful teleconferences:

_____

General comments regarding teleconferencing:

_____

_____

We appreciate the time you've taken to help us in this project. If you would like to receive a copy of the report at the time of completion of this project, please check the appropriate space after completing the next section.

_____

Name

_____

Title

_____

College

_____

Address

____ Yes, I would appreciate a copy of the completed report.

____ No, I do not wish to receive the completed report.

PLEASE RETURN SURVEY TO:
Darlyne Ervin
Director, Occupation Programs
Odessa College

DEVELOPING A CURRICULUM FOR CONTINUING EDUCATION IN PETROLEUM TECHNOLOGY

WILLIAM A. DEXTER
Richland College
Dallas, Texas

ABSTRACT

This paper is divided into basically two parts. Firstly, it identifies the successful programs in Petroleum Technology already underway at Richland College under the auspices of the Department of Continuing Education. These courses include the Petroleum Technology Seminar (30 hours - 3 C.E.U's) and six different petroleum related mini-courses (12 hours - 1.2 C.E.U.'s) all Texas Coordinating Board approved.

Secondly, we have a plan to develop seven additional petroleum technology courses designed to develop proficiency and paraprofessionalism in these different disciplines. A federal vocational grant proposal is now being prepared and designed to initiate a complete curriculum development in these areas. These courses are expected to include 48 contact hours of instruction and provide 4.8 C.E.U.'s per course.

A NEED FOR TRAINING

Although there has been a continuous loss in the job market for those trained in Petroleum Technology, the most recent trend toward stabilization of world oil prices will stimulate domestic oil and gas production. With oil selling consistently at about $20 a barrel, economists predict that the demands for trained personnel will quickly increase due to an economic incentive for domestic oil production being more competitive. There is also the potential for the United States to impose an import tax on foreign oil and for the U.S. government to do away with the windfall profit's tax. It would appear that there will be a turnaround in the world oil market and this reversal will stimulate the economic situation and provide jobs, especially in Texas. We should recall that this state remains number one in the nation in petroleum exploration. Many professionals' job i.e. for geologist, petroleum engineers, land persons, etc. have been displaced as a result of the "oil crunch" and these highly trained personnel have gradually been absorbed into adjacent and perhaps more secure, but lower paid professions. These persons will be reluctant to return to oil and gas positions which have been insecure and industry will need replacement personnel for these people.

Within the next two years, the consensus is that there will be a greater demand for technically trained persons in oil and gas technology. The community colleges and universities continuing education departments must be prepared to meet these challenges by implementing training programs in the skills of the petroleum industry.

Due to recent stringent economic conditions many oil companies can no longer afford to train and provide funding for their paraprofessional staff. A petroleum technology curriculum should now be incorporated into a continuing education program in some Texas community colleges and universities in order to provide the quality training as well as the necessary response time that the industry requires.

RICHLAND'S PRESENT PROGRAM

During the past five years at Richland College of the Dallas County Community College District and through the Department of Continuing Education, programs have been offered for eleven consecutive ten week Petroleum Technology Seminars, including ten basic disciplines in oil and gas studies. The general topics included are as follows:

I. PETROLEUM GEOLOGY
II. EXPLORATION GEOPHYSICS
III. RESERVOIR ENGINEERING
IV. DRILLING ENGINEERING
V. WELL LOG ANALYSIS
VI. PRODUCTION ENGINEERING
VII. HYDROCARBON CHEMISTRY AND FLUID DYNAMICS
VIII. PETROLEUM LAND MANAGEMENT
IX. PETROLEUM LAW
X. PETROLEUM ECONOMICS

The following is an instructional syllabus covering the disciplines for the Petroleum Technology Seminar:

I. PETROLEUM GEOLOGY

A. INTRODUCTION TO FUNDAMENTALS OF GEOLOGY
B. FUNDAMENTALS OF PETROLEUM GEOLOGY
   1. Geological Structures
      a. Source Rock
      b. Reservoir Rocks
      c. Traps

2. Origin of Hydrocarbons
3. Exploration Geology

II. EXPLORATION GEOPHYSICS

A. OBJECTIVE OF GEOPHYSICS
   1. Tools of Geophysics
   2. Relation to Geology
B. GRAVITY AND MAGNETIC METHODS
   1. Physical Principles
   2. Acquisition of Data
   3. Interpretation of Data
C. ELECTRICAL METHODS
D. SEISMIC METHODS
   1. Physical Principles
   2. Acquisition - Energy Sources
   3. Processing
      a. Statics
      b. Velocity Analysis
      c. Migration

III. RESERVOIR ENGINEERING

A. ASPECTS OF RESERVOIR ENGINEERING
B. DRILLING PROSPECT EVALUATION
   1. Reserve Estimating
   2. Prospect Economics
C. WELL EVALUATION
D. FIELD DEVELOPMENT
   1. Evaluating Geology
   2. Production Mechanisms
   3. Production Forecasting
E. SECONDARY/ENHANCED RECOVERY

IV. DRILLING ENGINEERING

A. CASING SEAT SELECTION
   1. Type & Positions of Casing
B. MUD AND MUD PROPERTIES
C. GENERAL DRILLING PROCEDURES
D. BITS
E. HYDRAULICS
F. DIRECTIONAL HOLES
G. OFF-SHORE DRILLING

V. WELL LOG ANALYSIS

A. HISTORY AND INTRODUCTION
    1. Log Interpretation & Vocabulary
    2. Spontaneous Potential
B. RESISTIVITY LOGS
C. SONIC LOGS AND USES
D. RADIOACTIVE LOGS
E. INTERPRETATION
F. DIPMETER
G. NEW LOGGING TECHNOLOGY

VI. PRODUCTION ENGINEERING

A.. WELL COMPLETION
    1. Perforating and Open Hole
    2. Through Tubing Production
B. ARTIFICIAL LIFT
C. SAND CONTROL
    1. Wire Wrapped Screen
    2. Slotted Liners
D. SURFACE PRODUCTION EQUIPMENT
E. FORMATION DAMAGE
    1. Correction
    2. Fracing
    3. Corrosion Control
    4. Workover Planning

VII. HYDROCARBON CHEMISTRY AND FLUID DYNAMICS

A. BASIC HYDROCARBONS
    1. Chemical Structure
    2. Phase Behavior
B. FLUID DYNAMICS
    1. Basic Hydraulics
        a. Hydrostatic Head
        b. Pressure Loss
            1. Laminar Flow
            2. Turbulent Flow
            3. 2-Phase Flow
    2. Flowing Well Performance
        a. Inflow-Upflow
        b. Wellbore "Skin" Effect

VIII. PETROLEUM LAND MANAGEMENT

- A. LAND DESCRIPTIONS
- B. OIL AND GAS LEASE
  - 1. Federal
  - 2. State
  - 3. Fees
- C. LEASE TERMS
  - 1. Cash Bonus
  - 2. Royalty
  - 3. Fixed Term
  - 4. Rental Options
- D. SOURCES OF INFORMATION
- E. SAMPLE LEASE FORM

IX. PETROLEUM LAW

- A. REAL PROPERTY LAW
- B. TITLE AND CURATIVE MATTERS
- C. POOLING AND UNITIZATION
- D. OPERATING AGREEMENTS
- E. FARMOUT AGREEMENTS
- F. ASSIGNMENTS
- G. CONTRACT LAW
- H. SECURITIES
- I. TRADE SECRETS

X. ECONOMICS

- A. OIL PRICES
- B. NATURAL GAS PRICES
- C. FACTOR COSTS
  - 1. Cost of Capital
  - 2. Drilling Cost
  - 3. Lease Acquisition Cost
  - 4. Geology Cost
  - 5. Geophysical Costs
  - 6. Operating Costs
- D. MEASURING PROFITABILITY

These Petroleum Technology Seminars have been well attended. There have been over 100 participants from a variety of backgrounds, i.e. secretaries, accountants, land personnel,

engineering assistants and technicians, investors, petroleum engineers, banking personnel, oil field hands, computer personnel, surveyors, etc. in three of the eleven seminars.

The purpose of these seminars is to encourage fundamental understandings and to provide an overview of the entire petroleum industry and help to create a means for better communication across interdisciplinary petroleum related subjects.

These seminars have benefited job performance through a more comprehensive knowledge of the industry. A detached series of course descriptions for these seminars were received and approved by the Texas Coordinating Board for occupational and vocational training, including the staffs approval and Statements of Qualifications. Certificates of completion for 3.0 C.E.U.'s were awarded to persons completing the seminars.

In addition to these seminars, Richland College prepared a level two seminar series which was presented to the Environmental Protection Agency (EPA). This program was attended by EPA's technical staff. These same petroleum seminar programs are also available through Richland College's Business and Professional Institute and are available to oil and gas companies.

MINI COURSES IN OIL AND GAS TECHNOLOGY

In addition to the 30 hour seminars in continuing education, additional petroleum related courses were set up at Richland College. They were also CB approved and taught on a 12 contact hour basis with 1.2 C.E.U.'s awarded for completion. Staff members' Statements of Qualifications have also received CB approval. These courses are:

1. PETROLEUM GEOLOGY
2. EXPLORING FOR OIL AND GAS
3. CARTOGRAPHY AND MAP
4. PETROLEUM LAND MANAGEMENT
5. FUNDAMENTALS OF WELL LOG ANALYSIS
6. OLD ELECTRIC WELL LOGS

Brief descriptions of these courses and instructional syllabi are as follows:

PETROLEUM MINI COURSE DESCRIPTION

PETROLEUM GEOLOGY

An overview into the many faceted subject of geology. Topics

include. Fundamental Principles, Historical Geology, Physical Geology, Chemistry of Hydrocarbons, Migration and Accumulation, Reservoir Traps and Rocks, Properties and Mechanics of Reserves and Other Energy Resources.

SYLLABUS FOR PETROLEUM GEOLOGY COURSE

I. INTRODUCTION

II. FUNDAMENTAL PRINCIPLES

III. HISTORICAL GEOLOGY
- A. Earth History
- B. Geologic Time

IV. PHYSICAL GEOLOGY
- A. Classification of Rocks
- B. Geologic Processes
  1. Origin
  2. Phenomena of Deposition
- C. Rock Cycle

V. PETROLEUM GEOLOGY
- A. Chemistry of Hydrocarbons
- B. The Origin of Hydrocarbons
  1. Organic
  2. Abiogenic
- C. Migration and Accumulation
- D. Reservoir Traps
- E. Reservoir Rocks
- F. Properties of Reservoirs
- G. Mechanics of Reservoirs

VI. OTHER ENERGY RESOURCES
- A. Coal
- B. Oil Shale
- C Tar Sands
- D. Geothermal Energy
- E. Radioactive Energy

EXPLORING FOR OIL AND GAS

Learn the series of steps needed to survey a prospect and the techniques normally accepted and used in formulating decisions in oil and gas adventures. Topics include: Introduction to Exploration Methods, Surface and Geophysical Mapping Techniques and

Formulating a Sound Evaluation and Decision.
SYLLABUS FOR **EXPLORING FOR OIL AND GAS**

I. INTRODUCTION
   A. Risky Business
   B. Developmental
   C. Wildcat

II. EXPLORATION METHODS
   A. Surface Geology
   B. Subsurface Geology
      1. Tools
         a. Wells Samples
         b. Cores
         c. Mudlogs
   C. Geological Mapping Techniques
      1. Structure Maps and Profiles
      2. Isopach Maps
      3. Formation Top Maps
   D. Production Maps
   E. Scout Tickets
   F. Geophysical Techniques
      1. Seismic
         a. Reflection
         b. Refraction
      2. Magnetic Surveys
      3. Gravity Methods
      4. Geochemical Methods

III. FORMULATING A GEOLOGICAL SUMMARY AND A DECISION

CARTOGRAPHY AND MAP INTERPRETATION

Participants in this course will learn the fundamentals of maps of all kinds. They will be able to interpret graphic data, determine locations, values, positions and be able to construct maps of their own. Persons specifically engaged in the energy related industry, draftsmen, surveyors, explorers, and even hunters, fishermen, yachtsmen, backpackers and campers will benefit from the experience.

SYLLABUS FOR **CARTOGRAPHY AND MAP INTERPRETATION**

I. THE NATURE OF MAPS

A. Establishing a Need for a Reference System
B. How To Find Places Using Coordinates
C. Latitude
D. Longitude
E. Measuring the Earth
F. Angles vs. Distances
G. Directions

II. GRID SYSTEMS (EARTH)
A. Township Range System
B. Bearings
C. Azimuth (Horizontal Angles)
D. Altitude (Vertical Angles)
E. Positions on Earth
F. Time of Position

III. MAP PROPERTIES
A. Scales (True and Exaggerated)
B. Direction
C. Distance
D. Map Symbols
E. Map Colors
F. Map Features

IV. PRINCIPLES OF CONTOUR
A. Topographic and Relief
B. Geologic
C. Structural
D. Hydrographic
E. Weather
F. Seismic
G. Profile Cross Sections
H. Road Maps

V. MAP PROJECTIONS
A. Cylindrical (Mercator and Traverse)
B. Conic
C. Polar
D. Maps as Models
E. Globes (Earth, Moon, etc.)

VI. STAR CHARTS
A. Celestial Sphere
B. Azimuth (Altitude on Sky)
C. Hour Angle (Declination)
D. Right Ascension
E. Local Sidereal Time

F. Star Location

PETROLEUM LAND MANAGEMENT

Learn the fundamentals and versatility of land and leasing legal agreements, as well as the significance of the land person. Topics include: Functions of the Landman, Land Descriptions, Township Grid Systems, Oil and Gas Lease, Fee Leases, Federal Leases, State Leases, Lease Combinations and Lease Terms, Maps, Land on Lease Ownership Records and Legal Information.

SYLLABUS FOR **PETROLEUM LAND MANAGEMENT**

I. INTRODUCTION
   A. Functions of the Landman

II. Land Descriptions
   A. Township Grid Systems
      (Rectangular Survey System)

III. OIL AND GAS LEASE
   A. Lessor
   B. Lessee
   C. Fee Leases
   D. Federal Leases
   E. State Leases
   F. Lease Combinations
   G. Lease Terms
      1. Cash Bonus
      2. Royalty
      3. Fixed Term
      4. Rental Options

IV. SOURCES OF INFORMATION
   A. Maps
      1. Topographic Maps
      2. Land Maps
      3. Technical Maps
      4. Plats
   B. Land on Lease Ownership Records
   C. Legal Information

FUNDAMENTALS OF WELL LOG ANALYSIS

Gain the knowledge necessary to comprehend the main physical parameters needed to evaluate a hydrocarbon reservoir. Elements of log interpretation will be covered, (not included is tool measurement theory). Topics include: Rock Properties, Resistivity

Concepts, Fluid Properties, Archie Equation, Induction Log, Laterolog, Spontaneous Potential, Gamma Ray Log, Acoustilog, Compensated Neutron Log, Litholog, Sand vs. Shale Porosity Formation Evaluation, Computer Processed Logging and more.

SYLLABUS FOR **FUNDAMENTALS OF WELL LOG ANALYSIS**

I. INTRODUCTION TO ROCK PROPERTIES

II. RESISTIVITY CONCEPTS
- A. Fluid properties
- B. Archie Equation
- C. Induction Log
- D. Laterolog
- E. Spontaneous Potential

III. GAMMA RAY LOG

IV. ACOUSTILOG

V. COMPENSATED NEUTRON LOG

VI. LITHOLOG

VII. POROSITY LOGS
- A. Sand vs Shale Porosity
- B. Formation Evaluation
- C. Conductivity - Porosity
- D. Water Saturation Determination
- E. Water Cut From Well Logs

VIII. COMPUTER PROCESSED LOGS

OLD ELECTRIC WELL LOGS

The major focus of the course is how to interpret the characteristics of electric well logs. Learn about the resistivity and conductivity for evaluating an oil or gas reservoir. Topics include: The General Nature of Electric Logs, Spontaneous Potential Curves, Resistivity Curves, Caliper and Profile Logs, Evidence for Porosity, Dual Induction Logs, Micrologs, Log Interpretation, Lithology Description, Formation Testing and Evaluation.

SYLLABUS FOR **OLD ELECTRIC WELL LOGS**

I. GENERAL NATURE OF ELECTRIC LOGS (WIRELINE LOGS)
   A. Spontaneous Potential Curves

II. RESISTIVITY CURVES
   A. Caliper and Profile Logs
   B. Evidence for Porosity

III. DUAL INDUCTION LOGS

IV. MICROLOG

V. LOG INTERPRETATION
   A. Lithology description
   B. Determination of Oil and Gas Saturation

VI. FORMATION TESTING

VII. FORMATION EVALUATION

Although each of these courses that have been offered were successful, the primary problem is that of promotion (and bolstering attendance during a sagging oil industry). The costs for advertising have been prohibitive. Those petroleum industry personnel contacted unanimously agree that there is a dire need for a more thorough understanding of the fundamental topics in petroleum technology and these courses can provide for the deficiencies that exist.

ORGANIZATIONAL COOPERATION

During the course of establishing a petroleum technology program through Richland College, we have gained support, endorsement and recognition from a variety of professional organizations, including:

The American Association of Petroleum Geologists
The Dallas Geological Society
Society of Petroleum Engineers (Both Local and National)
Society of Professional Well Log Analysts
Dallas Association of Petroleum Landmen
The Dallas Geophysical Society

In addition to these organizations, Richland College received instructional staff support and encouragement from a variety of oil and gas companies. Among these are:

Arco Production Company
Sun Exploration & Production Co.
Sohio Petroleum
May Petroleum
Enserch Corporation
Schlumberger Company
Petroleum Information Corp.
I.B.M. Corporation
Dwight's Energy Data
Boffin, Inc.
(Microcomputer Software)
Environmental Protection Agency
Trans Texas Energy Corporation
Norgasco Company
TXO Production Corporation
Petroscan Company
Maxus Energy
etc.

Additionally:

Legal Firms providing advice and staff were the offices of:

Vernon, McKinley, Dubner & Lybrand
Evans, Fernandez, Fogerson & Knebel

The above companies and a number of independent petroleum operators (of smaller companies) were the source of instructors for the previous 30 hour Petroleum Technology Seminars and the 12 hour petroleum related mini-courses. All of these instructors have the appropriate college training and many years experience in their respective disciplines.

THE NEW CURRICULUM
ANOTHER PROPOSED PLAN FOR CONTINUING EDUCATION IN PETROLEUM TECHNOLOGY

It is visualized that a future Petroleum Technology Program will be needed and should include a logical series of related disciplines in oil and gas technology where, conceptual construction continuously grows and one course leads to and benefits its successor course.

This plan will include seven additional courses designed so that each course will encompass 48 instructional contact hours. Certification with 4.8 C.E.U. credits will be awarded and/or the option of three semester hours credit will be considered. (The latter pending DCCCD approval.)

Although a complete curriculum with all required credit courses is not listed in this plan, this proposal will be submitted to the Texas Coordinating Board for consideration for a Federal Secondary Vocational Education Program Grant to develop a detailed curriculum.

The following was recommendation from the Task Force Committee from the Dallas County Community College District:

> "On November 1, 1985, the Technical Occupational Dean's Council reviewed the data concerning the petroleum technology study and the summary of the task force meeting. All deans agreed that Richland would be the logical college to develop and implement a petroleum technology program because of its location, extensive curriculum development already completed, close ties with industry representatives and staff presently available. The deans felt that due to the lack of a job market, a credit petroleum technology program should not be implemented at this time. However, due to the factors cited above, they recommend that Richland be named the college that will offer the program if the market conditions improve. This assignment would permit Richland to continue close liaison with petroleum industry representatives and should significantly improve Richland College's response time to the industry should development of a credit program become feasible."

Should there appear to be a new stimulated trend in the

petroleum industry, then there will be an additional need for more continuing education courses. The following courses will be included in the future petroleum technology program through Richland College:

1. Petroleum Geology, Exploration Geophysics and Reservoir Engineering
2. Drilling Engineering and Well Logging Analysis
3. Production Engineering and Fluid Dynamics
4. Land Management Leasing, Contracts and Petroleum Law
5. Petroleum Accounting and Petroleum Marketing
6. Petroleum Economics and Statistics
7. Data Acquisition and Computer Technology

Each of these courses represents one independent Continuing Education course (projected 48 contact hours) (4.8 C.E.U.'s)

PHILOSOPHY OF THE NEW PROGRAM

Detailed outlines for the above courses have not been developed but will require continued study and cooperation with industry personnel.

The sequence of the above courses is essential as each course relates and becomes prerequisites to the others. They should be of sufficient length and content and sequenced within a coherent system of study to enable the student to develop the necessary knowledge, behaviors and skills essential to each specific discipline.

The curriculum content (completed syllabus) for each of these seven courses should include the latest in innovations in each discipline. Each course should reflect current practices in occupations and the applications of scientific principles, mathematics and communication skills appropriate to each of the specific disciplines.

These additional courses should also provide systematic

instruction on safety practices and accident prevention; further, they will include opportunities for students to develop efficient work habits, attitudes, social and economic significance of their work.

There should be ample opportunity for on campus and off campus facilities use, i.e. at cooperating petroleum companies and at various service organizations. There should also be appropriate laboratory space available at college campuses with all of the necessary apparatus to create solid laboratory oriented courses.

During these courses, students will have quality opportunity for clinical and field experiences (conditions where those skills and techniques discussed in lecture will be initiated in laboratory environments)--all of these activities and clinical experiences will be performed under the supervision of approved instructors in the program area. (Statements of Qualifications for CB approval should be incorporated into the plan.) Each course of study should be further identified by establishing learning objectives and methods for evaluating student performances.

This additional petroleum technology curriculum plan should also provide all of the needed technical subject matter required to become a certified petroleum technology professional.

Action should be initiated in conjunction with various professional organizations (previously mentioned) to have them recommend these programs and implement certification upon students completion of each course.

ACCOMPLISHMENT OBJECTIVES

This proposed additional petroleum technology plan will accomplish the development of a comprehensive technical curriculum designed to provide training in seven major areas of oil and gas technology.

1. It will provide for 326 total contact hours of instruction.
2. It will serve to prepare and certify persons desiring a career in petroleum technology.
3. It will provide for an intensive overview of a very complex industry.
4. It will encourage greater job involvement for those already employed in this vocation.
5. It will benefit their job performance.
6. It will also provide the knowledge necessary to evaluate oil and gas prospects.

7. It will provide the knowledge for persons desiring to understand oil and gas investments.

8. These courses will also provide industry the personnel needed to fill the positions of persons who left the profession during the recent world oil crises.

THE NEW CURRICULUM IN PROSPECTIVE

1. A detailed course description for each course.

2. A composite instructor's outline, including daily lesson plans for each course.

3. It should identify all course activities on a daily basis (i.e. demonstrations, laboratory investigations and exercises).

4. It should identify for each topic (i.e. publication, author and date).

5. List audio/visual materials, their sources types (i.e. films, movies, videos, charts).

6. It should provide for students behavioral objectives for each topic in each course after having experienced the lesson the student should be able to _____.

7. It should list extended activities and supplementary facilities.

8. It should list all materials for the instructor to carry out a given exercise and it will identify the anticipated outcome of all laboratory activities.

9. There should be a series of evaluation suggestions for each topic (i.e. sample tests, etc).

10. It should include a completed syllabus for each course giving routine activities for all 48 instructional contact hours.

11. Richland College's Department of Continuing Education should contact professional organizations to gain their endorsement and cooperation. Among these are:

American Association of Petroleum Geologists
Society of Petroleum Engineers
Society of Professional Well Log Analysts
Dallas Association of Petroleum Landmen
Dallas Geological Society
Society of Exploration Geophysicists

12. Contact other colleges having working petroleum technology curricula and incorporate their successful procedures and activities.

13. Develop a job search committee for placement of persons completing these courses. Work closely with JSEC (Job Services Employer Committee) and the Texas Employment Commission.

14. Pursue ABET (Accreditation Board for Engineering and Technology) to seek ways to provide certification for persons satisfactorily completing these courses.

15. Incorporate the latest techniques in each discipline (i.e. computer applications and data bases).

16. Interview potential instructors for each discipline from Richland College's already completed file of over 70 qualified petroleum technology instructors.

17. Research methods of promoting petroleum technology courses.

18. Work closely with the occupations and technology divisions of other community colleges and follow their recommendations for continuous curriculum update.

19. Pursue CB endorsement and approval for all future petroleum technology courses.

20. Develop Statements of Qualifications forms on all instructors so that they may become approved by CB.

21. Contact the outreach programs of major oil companies to keep abreast of the job market.

22. Identify quantitative skills (i.e. mathematics, etc.) needed for each course and provide assistance for students needs (i.e. developmental math, etc).

23. Identify a comprehensive list of materials, their costs, etc. for demonstration purposes for each of seven courses and disciplines.

24. Set up a list of discussion questions which students can use to evaluate their progress with each respective discipline.

25. Recommend time requirements needed to cover certain topics--both for lecture presentations and laboratory experiences.

26. With the assistance of prospective instructors, we should include examples of conceptually oriented test (used by potential instructors) for student achievement evaluation and identifying competency levels.

POSSIBLE CONSIDERATION BY ABET

Hopefully, these courses in additional petroleum technology plan will also qualify through the criteria for accrediting programs in engineering and technology (ABET).

The purposes of the Accreditation Board of Engineering and Technology (ABET) are:

1. Organize and carry out a comprehensive program of accreditation of pertinent curricula leading to degrees and assist academic institutions in planning their educational programs.

2. Promote the intellectual development of those in engineering and technology and provide technical assistance to agencies having engineering related regulatory authority applicable to accreditation.

Considering these criteria for accreditation, these petroleum technology courses should qualify.

ABOUT THE AUTHOR

WILLIAM A. DEXTER is the Administrative Planetarium, Science and Technology Director for Continuing Education at Richland College. He has varied experience and background in curriculum development, college teaching and grant proposals extending from 1963 - 1988. He was an original author for the Earth Science Curriculum Project (NSF) and he is author of several secondary and college level science tests and is a proponent of Directed Inquiry Instruction. He has developed the entire petroleum technology program at Richland College, is a registered petroleum geologist and in addition has years of oil industry experience.

1987 PERSONNEL PROFILE/SALARY SURVEY AND INSTITUTIONAL PROFILE

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During the fall semester 1987, the Research Committee of the TEXAS ASSOCIATION FOR COMMUNITY SERVICES AND CONTINUING EDUCATION in association with the OFFICE OF POLICY STUDIES IN HIGHER EDUCATION at the University of North Texas conducted a comprehensive survey of continuing education personnel, salaries, and programming.

Personnel Profile/Salary Survey questionnaires were mailed to all members of TACSCE and of the Texas Administrators of Continuing Education at Community/Junior Colleges (TACE), and to others involved in continuing education who are not members of either of the two professional associations. Questionnaires were mailed to 274 members; usable responses were received from 53%.

Personnel/Salary Survey Response:

Questionnaires mailed:	274
Usable questionnaires returned:	144
Percentage of response:	53%

Institutional Profile Survey questionnaires were mailed to the administrator responsible for continuing education at each regionally accredited Texas college/university listed in the 1986 HIGHER EDUCATION DIRECTORY (Higher Education Publications, Inc., Washington, D.C.). A total of 144 questionnaires were mailed; exactly half were returned.

Institutional Survey Response:

Questionnaires mailed:	144
Usable questionnaires returned:	72
Percentage of response	50%

Analysis of the data received from the fall 1987 survey is presented in two sections of this document:

I. **Personnel Profile and Salary Survey**
II. **Institutional Profile**

I. PERSONNEL PROFILE/SALARY SURVEY

Survey questionnaires were mailed to all members of TACSCE and of the Texas Administrators of Continuing Education at Community/Junior Colleges (TACE), and to others involved in continuing education who are not members of either of the two professional associations. Questionnaires were mailed to 274 members; usable responses were received from 53%.

Response by TYPE OF INSTITUTION:

Two-Year Public	104	72%
Two-Year Private	1	1%
Four-Year Public	21	15%
Four-Year Private	13	9%
Other*	5	3%

* Upper division institutions, volunteer agencies, state wide extension services.

Response by TITLE:

Title	2Year	4YrPub	4YrPri	Other	Total
V P/Provost	5	0	0	0	5
Dean	26	0	2	0	28
Director	38	10	7	3	58
Assoc/Asst Dean	7	1	0	0	8
Assoc/Asst Dir	1	1	1	1	4
Prog Director	12	0	1	0	13
Coordinator	9	7	1	0	17
Other	7	2	1	1	11

Response by SEX:

Many who reviewed the findings of the 1986 survey asked that gender be collected with future surveys. Many surmised that the sex of respondents might clarify the Personnel Profile. Only one respondent failed to provide gender identification. More than half (58%) of continuing education personnel are female, including 57% of two-year and 59% of four-year institution personnel.

	2Year	4YrPub	4YrPri	Other	Total
Male	45	9	4	2	60
Female	60	11	9	3	83
No Response	0	1	0	0	1

Response by RESPONSIBILITY:

Area of Primary Responsibility:

	2Year	4YrPub	4YrPri	Other	Total
Non-Credit	82	14	7	4	107
Credit	3	4	3	0	10
Both	17	3	3	1	24
Other	3	0	0	0	3

Level of Responsibility:

	2Year	4YrPub	4YrPri	Other	Total
Specific Prog	6	5	1	1	13
Campus Prog	66	8	9	2	85
Multi-campus	31	4	1	1	37
Other	2	4	2	1	9

Number of Employees:

Respondents in most (81%) of the non-credit programs report having a total of 1,114 full time employees. Other types of institutions report 34% of those employees; with one state-wide extension service reporting 198 of them, an obvious skew is added to that category and to employee totals. Most of the institutions (69%) reported from 1-10 employees.

	2Year	4YrPub	4YrPri	Other	Total
Total Employees	611	79	468	78	1,114
Ave/All	5.8	3.8	3.5	75.6	7.7
Ave/Those with Employees	7.3	4.4	4.6	75.6	9.5
Range	0-50	0-20	0-18	4-298	0-298

Number of Institutions by
Number of Employees Reported:

Employees	2Year	4YrPub	4YrPri	Other	Total
0	21	3	3	0	27
1 - 10	72	16	9	2	99
11 - 25	6	2	1	0	9
26 - 50	6	0	0	2	8
50+	0	0	0	1	1

Response by CLASSIFICATION/TIME STATUS:

	2Year	4YrPub	4YrPri	Other	Total
Administrator					
Fulltime	81	12	9	3	105
Parttime	4	0	1	1	6
No indication	16	2	3	0	21
Faculty/Other					
Fulltime	4	7	0	1	12
Parttime	0	0	0	0	0

Response by REPORTING LINES:

Titles of Administrators to Whom
Continuing Education Personnel Report:

	2Year	4YrPub	4YrPri	Other	Total
Chancellor	1	0	0	0	1
President	15	1	0	1	17
V P/Provost	32	4	7	1	44
Dean	35	7	4	0	46
Director	6	6	2	1	15
Assoc/Asst Dean or Dir	8	2	0	0	10
Other	8	1	0	2	11

Level of Education by Title

When LEVEL OF EDUCATION is merged with respondents' TITLE, Directors holding Masters degrees form the most prevalent

continuing education personnel pattern (27%), followed by Deans with Doctorates (10%) and Deans with Masters (10%), and Director with Doctorates (9%).

	Assoc	Bach	Master	Doctrt	Total
V P/Provost	0	0	2	3	5
Dean	0	0	14	14	28
Director	0	5	39	13	57
Asst/Assoc Dean	0	2	4	2	8
Asst/Assoc Dir	0	1	3	1	5
Program Dir	0	6	5	1	12
Coordinator	2	5	8	1	16
Other	0	0	6	5	11

Response by LEVEL OF EDUCATION:

	2Year	4YrPub	4YrPri	Other	Total
Associate	2	0	0	0	2
Bachelors	15	3	1	0	19
Masters	58	13	7	3	81
Doctorate	29	4	5	2	40
No Answer	1	1	0	0	2

Response by ACADEMIC FIELD OF HIGHEST DEGREE:

	2Year	4YrPub	4YrPri	Other	Total
Art/Music	0	1	0	0	1
Business	6	0	2	1	9
Liberal Arts					
Communication	2	4	0	0	6
English/Lang	5	2	3	0	10
Psych/Sociology	5	0	1	0	6
Social Science	3	1	1	0	5
Education	14	1	0	0	15
Adult Education	3	2	0	0	5
Counseling	6	1	1	0	8
Education Admin	11	1	0	0	12
Higher Educ	4	1	1	0	6
Phys Ed	3	0	0	0	3
Voctnl Educ	2	0	0	0	2
Home Ec/Child Dev	3	0	0	0	3
Math/Science	3	1	2	0	6
Nursing	1	1	0	0	2

Response by TIME ON THE JOB, TIME AT THE INSTITUTION AND TIME IN CONTINUING EDUCATION:

	2Year	4YrPub	4YrPri	Other
Time on the Job				
Most Years	20	13	22	15
Fewest Years	1	1	1	8
Average Years	5.4	6.5	5.6	11.8
Time at Institution				
Most Years	32	18	22	37
Fewest Years	1	2	2	10
Average Years	9.4	8.7	9.9	18.5
Time in Continuing Ed				
Most Years	31	24	20	18
Fewest Years	1	2	2	9
Average Years	8.1	9.1	8.4	13.8

Response by SALARY:

Only two respondents failed to report salary for the 1987 survey. Average, maximum, and minimum salaries are derived for fulltime respondents by type of institution and by sex. Average salaries are also merged by title by sex, by degree by sex, and by level of responsibility by sex.

Average Salaries by Institution, by Sex:

Average fulltime salary by institution by sex shows female salaries consistently lagging behind male salaries. Salaries are highest in "Other" types of institutions (primarily, but not entirely, because one respondent reported an unusually high salary) for both males and females. Those not fortunate enough to be employed by one of these special-purpose institutions fare best at a four-year public institution if male, and at a two-year college if female. Salary ranges are extreme at both two-year and four-year institutions, with minimum female salaries less than half the minimum male salary for both two-year colleges and for four-year public institutions.

	2Year	4YrPub	4YrPri	Other	Total
Avg. Salary	$36,050	$30,842	$32,189	$54,000	$35,629
Male	39,922	43,143	37,400	68,000	41,082
Female	33,820	22,000	28,934	44,667	31,807
Max. Salary	$62,000	$63,000	$60,000	$86,000	$86,000
Male	59,000	63,000	60,000	86,000	86,000
Female	62,000	35,000	53,000	49,000	62,000
Min. Salary	$10,000	$12,000	$22,000	$40,000	$10,000
Male	22,000	27,000	25,000	50,000	22,000
Female	10,000	12,000	21,000	40,000	10,000

Average Salaries by Title by Sex
for Two-Year and Four-Year Institutions:

With few exceptions, male salaries at two-year colleges are the highest, and female salaries at four-year institutions are the lowest. In general, male salaries exceed female salaries.

	Male	Female	All
Two-Year Colleges			
V P/Provost	$51,750	$46,000	$50,600
Dean	47,119	42,500	44,986
Director	34,625	34,310	34,446
Assoc/Asst Dean	33,000	35,750	34,571
Assoc/Asst Dir	None	17,000	17,000
Program Dir	31,000	26,200	26,636
Coordinator	35,000	23,857	26,333
Other	32,000	37,500	35,143
Four-Year Institutions			
V P/Provost	None	None	None
Dean	$40,000	$53,000	$46,500
Director	41,500	26,184	33,842
Assoc/Asst Dean	None	18,000	18,000
Assoc/Asst Dir	None	28,000	28,000
Program Dir	None	27,000	27,000
Coordinator	45,000	17,200	25,143
Other	27,000	24,000	25,500

Average Salaries by Degree by Sex
for Two-Year and Four-Year Institutions:

At both two-year colleges and at four-year institutions, for both

male and female personnel, salaries are clearly influenced by the level of degrees earned. In general, male salaries at all institutions exceed female salaries.

	Male	Female	All
Two-Year Colleges			
Associates	None	$14,000	$14,000
Bachelors	$26,500	26,692	26,667
Masters	37,720	33,672	35,447
Doctorate	45,041	42,615	43,954
Four-Year Institutions			
Associates	None	None	None
Bachelors	None	$19,500	$29,500
Masters	$32,286	23,818	27,111
Doctorate	52,600	33,367	44,052

Average Salary by Level of Responsibility by Sex for Two-Year and Four-Year Institutions:

In two-year colleges, salaries tend to reflect the increased responsibilities implicit in broader programs. In four-year institutions, that distinction is not as clear. In both two and four-year institutions, male salaries tend to be higher.

	Male	Female	All
Two-Year Colleges			
Specific Program	$32,500	$31,500	$31,833
Campus	39,282	30,875	35,547
Multi-Campus	41,640	38,277	35,125
Other	None	25,000	25,000
Four-Year Institutions			
Specific Program	$49,500	$22,367	$32,411
Campus	42,250	28,000	35,600
Multi-Campus	None	21,600	21,600
Other	26,000	27,000	26,500

Average Salaries by Sex, for Time on the Job, Time at the Institution, and Time in Continuing Education:

Quite evidently, salary is directly influenced by time on the job, by time at an institution, and by time as a continuing education professional; years of experience do convert into added dollars. Equally evident, however, is the disparity between male and female salaries, with male salaries consistently higher in every category.

	Male	Female	All
Time on the Job			
0 - 5 Years	$36,287	$29,949	$32,085
6 - 10 Years	41,888	35,529	38,800
11+ Years	49,187	38,429	45,003
Time at Institution			
0 - 5 Years	$34,071	$29,588	$30,874
6 - 10 Years	35,360	29,793	31,220
11+ Years	46,795	38,550	43,430
Time in Continuing Ed			
0 - 5 Years	$37,312	$28,578	$31,166
6 - 10 Years	38,457	30,148	33,783
11+ Years	49,592	42,059	45,825

Response by SUPPLEMENTAL SALARY POLICY:

Most respondents indicated that they are free to engage in different activities as a supplement to their salary. Teaching credit classes, teaching non-credit classes, and consulting were all cited as common sources of supplemental income. Only 19% of two-year college personnel, 14% of four-year public and 23% of four-year private institution personnel indicated restrictions against suppiemental income.

	2Year	4YrPub	4YrPn	Other
Teach Non-credit	13	1	2	0
Teach Credit	12	7	4	0
Outside Consultg	17	8	4	2
All of Above	54	8	1	2
None of Above	20	3	3	0
Other	1	0	0	1

Note: More than one response was allowed.

Response by INDIVIDUAL PERCEPTION OF FUTURE ACTIVITY:

Each respondent was asked to anticipate future activity of the institution's program. The overwhelming majority (71%) expect future activity to increase. Only six of the 144 respondents (4%) expect a decrease in activity.

	2Year	4YrPub	4YrPri	Other	Total
Increase	78	18	6	3	105
Decrease	5	0	1	0	6
No Change	22	3	6	2	33

Response by FUTURE PLANS:

Respondents were also asked whether they are hoping/planning to leave their present job during the next year. Only 10 respondents (7%) replied affirmatively, and only 19 (13%) indicated that they are undecided about their future.

	2Year	4YrPub	4YrPri	Other	Total
Plan to Leave	7	2	1	0	10
Male	5	1	0	0	6
Female	2	1	1	0	4
Plan to Stay	86	14	11	2	113
Male	34	7	5	1	47
Female	52	7	6	1	66
Undecided	12	4	1	1	18
Male	6	0	0	0	6
Female	6	4	1	1	12

TWO-YEAR COLLEGE PERSONNEL PROFILE

If you are a continuing education professional at a two-year college, chances are that you . . .

. are female,

. are called DIRECTOR,

. are classified as an administrator,

. are responsible for non-credit programming,

. are employed fulltime,

. are responsible for a campus or college-wide program,

. have 5.8 employees,

. report to a dean,

. have a Master's degree,

. have earned your degree in the field of education,

. earn about $36,050 per year,

. may teach credit or non-credit classes or do consulting work to supplement your pay,

. have held your present job for 5.4 years,

. have worked at your current school for 9.4 years,

. have been in continuing education for 8.1 years,

. plan to remain in your present position for the coming year,

. anticipate an increase in continuing education activity during the coming year.

FOUR-YEAR COLLEGE PERSONNEL PROFILE

FOR PUBLIC INSTITUTIONS

If you are a continuing education professional at a four-year public institution, chances are that you . . .

. are female,

. are called DIRECTOR,

. are classified as an administrator,

. are responsible for non-credit programming,

. are employed fulltime,

. are responsible for a campus or college-wide program,

. have 3.8 employees,

. report to a dean,

. have a Master's degree,

. have earned your degree in the field of communication,

. earn about $30,840 per year,

. may teach credit or non-credit classes or do consulting work to supplement your salary,

. have held your present job for 6.5 years,

. have been at your current institution for 8.7 years,

. have been in continuing education for 9.1 years,

. plan to remain in your present job for the coming year,

. anticipate an increase in continuing education activity during the coming year.

FOUR-YEAR COLLEGE PERSONNEL PROFILE

FOR PRIVATE INSTITUTIONS

If you are a continuing education professional at a four-year private institution, chances are that you . . .

. are female,

. are called DIRECTOR,

. are classified as an administrator,

. are responsible for non-credit programming,

. are employed fulltime,

. are responsible for a campus or college-wide program,

. have 3.5 employees,

. report to a vice president or provost,

. have a Master's degree,

. have earned your degree in English,

. earn about $32,189 per year,

. may teach credit or non-credit classes or do consulting work to supplement your salary,

. have held your present job for 5.6 years,

. have been at your current institution for 9.9 years,

II. INSTITUTIONAL PROFILE

Survey questionnaires were mailed to the administrator responsible for continuing education at each regionally accredited Texas college/university listed in the 1986 HIGHER EDUCATION DIRECTORY (Higher Education Publications, Inc., Washington, D.C.). Questionnaires were mailed to 144 institutions; usable responses were received from 50% of them.

Response by TYPE OF INSTITUTION:

The majority of responses (60%) were received from personnel from two-year public colleges; no responses were received from two-year private colleges. Of the remainder, 18% were from four-year public institutions, with 14% from four-year private institutions, and 8% from other types of institutions, such as upper-level universities, professional schools, and volunteer agencies.

Two-Year Public	43	60%
Two-Year Private	0	0%
Four-Year Public	13	18%
Four-Year Private	10	14%
Other	6	8%

Response by Title:

The cover letter sent with the questionnaire requested that the survey form be completed by the individual charged with responsibility for the entire continuing education program at the institution. Respondents at 57% of the institutions are titled DIRECTOR with that title prevailing at all types of institutions. Nearly all (78%) of the respondents at four-year institutions are so titled. Only 44% of two-year college respondents are titled DIRECTOR, with DEAN nearly as common (35%).

Clearly, chief administrators for continuing education programs are in the upper ranks of the institutional hierarchies. Only five reported assistant/associate titles.

	2Year	4YrPub	4YrPri	Other	Total
V P/Provost	2	0	0	0	2
Dean	15	2	2	0	19
Director	19	11	7	4	41
Asst/Assoc Dean	5	0	0	0	5
Asst/Assoc Dir	0	0	0	0	0
Other	2	0	1	2	5

Response by TITLE OF SUPERVISOR:

	2Year	4YrPub	4YrPri	Other	Total
Chancellor	1	0	0	0	1
President	11	0	0	2	13
V P/Provost	12	10	8	3	33
Dean	14	3	1	1	19
Other	5	0	1	0	6

Response by NUMBER OF FULLTIME EMPLOYEES:

Respondents were asked to report the number of fulltime personnel assigned to the continuing education program, including administrative, technical, clerical, and classified employees. Responses totaled 554 employees and ranged from 0 - 100. The typical (71%) institution reported 1-10 employees. Two-year colleges average 7.6 employees, but those reporting employees average 8.2 employees: four-year public institutions average 13.7*; four-year private institutions average only 3.6 employees, but those reporting employees average 6 per each.

	2Year	4YrPub	4YrPri	Other	Total
Number Reported	311	178*	36	29	554*
High	40	100*	13	7	100*
Low	0	2	0	1	0
Average (All)	7.6	13.7	3.6	4.8	7.9
Average (Respondents with Employees)	8.2	13.7	6	4.8	8.8*

Number of Institutions Reporting,
by Number of Employees Reported:

	2Year	4YrPub	4YrPri	Other	Total
0	5	0	4	0	9
1 - 10	30	11	4	6	51
11 - 25	6	0	2	0	8
16 - 50	2	1	0	0	3
50+	0	1	0	0	1

*One four-year public institution reported 100 employees, far more than the second highest respondent with 39. A more characteristic picture is provided by exempting this atypical report from both the four-year public (6.5) and total (7.3) averages.

Response by FULLTIME FACULTY:

Few institutions have faculty with fulltime non-credit teaching assignments; only 16 institutions reported a total of 345 faculty. Most (78%) institutions reported that fulltime faculty are assigned to the non-credit program.

	2Year	4YrPub	4YrPri	Other	All
Number Reported	310*	30	5	0	345*
High	228*	30	5	0	228*
Low	0	0	0	0	0
Average (All)	2.3	0.5	0	5	
Average (Those with employees)	22*	30	5	0	22*

Number of Institutions,
by Number of Employees Reported

	2Year	4YrPub	4YrPri	Other	All
0	29	12	9	6	56
1 - 10	11	0	1	0	12
11 - 25	2	0	0	0	2
26+	1	1	0	0	2

* One two-year college reported 228 employees, far more than the second highest respondent with only 20. A more characteristic picture is provided by exempting this atypical report from the two-year college and total average (7.2) of those institutions reporting employees.

Response by INSTRUCTOR HOURLY PAY:

Respondents were asked to reflect instructor average pay by the course for three semester hour credit courses and by both the course or the hour for non-credit courses.

Only 20 respondents provided credit course information. For those, hourly pay was extrapolated for 45 contact hours per semester. With only fragmentary information, four-year public institutions appear to have the highest pay structure for credit courses.

	2Year	4YrPub	4YrPri	Other	All
High/Course	$1200	$1800	$1500	*	$1800
/Hour	27	40	34	*	40
Low/Course	$ 700	$1500	$ 400	*	$ 400
/Hour	16	33	9	*	9
Average/Course	$ 942	$1625	$ 700	*	$ 120
/Hour	21	36	29	*	30
Number Reporting	11	4	5	None	20

*None reported

All but 10 institutions reported non-credit information, by the hour; very few institutions reported by the course. Four-year institutions have the highest pay structure for non-credit courses.

	2Year	4YrPub	4YrPri	Other	All
High/Hour	$56	$90	$50	$50	$90
Low/Hour	11	12	12	50	11
Average/Hour	16	28	23	50	20
Number Reporting	43	11	6	2	62

Response by ENROLLMENTS, COURSES, AND CONTACT HOURS:

Course Enrollments:

Course enrollments for the 1986-87 academic year for all types of institutions indicate an extreme range of program sizes, extending from a low of only 30 enrollments to a high of more than 46,000. The average for all types (8,266) indicates that the majority of institutions have programs of small to moderate enrollment. Averages by type of institution indicate that four-year private institutions have the smallest programs (3,214). Other types of institutions (upper division, professional, and non-collegiate agencies) presumably have the largest (12,744), but the small number of these institutions (only 6) does make that average

somewhat misleading.

	2Year	4YrPub	4YrPri	Other	All
High	40,000	35,000	9,000	46,378	46,378
Low	30	600	100	200	30
Average	8,900	7,037	3,214	12,744	8,266

Number of Course Sections:

	2Year	4YrPub	4YrPri	Other	All
High	4,621	668	267	255	4,621
Low	10	2	9	10	2
Average	714	254	113	129	509

Number of Contact Hours:

Number of contact hours (enrollment multiplied times course contact hours) ranged for all types of institutions from a low of only 170 to a high of more than 4,000,000. Four-year private colleges indicated the highest average, but because the number of institutions is so small (only 10), that average was influenced by one extremely large report.

	2Year	4YrPub	4YrPri	Other	All
High	2,620,000	746,803	4,080,000	2,700	4,080,000*
Low	400	13,396	675	170	170
Average	300,761	171,729	752,471	1,290	309,275*

* One institution's report seems to be out of proportion to its total enrollments and number of sections.

Response by ABILITY TO CALCULATE TOTAL CEU'S:

The CEU or Continuing Education Unit is the unit of credit awarded for successfully completing certain non-credit courses. Respondents were asked whether they have a system for calculating the total number of CEU's awarded by the institution. Most institutions (72%) indicated that they CANNOT automatically calculate CEU's. Approximately half of the four-year public institutions and Other types of institutions, 30% of four-year private institutions, and only 16% of two-year colleges have such systems.

	2Year	4YrPub	4YrPri	Other	All
Yes	7	7	3	3	20
No	36	6	7	3	52

Response by TOTAL CEU'S AWARDED:

With only a third of the institutions able to calculate total CEU's awarded, only 195 of the respondents were able to indicate CEU awards for the academic year. Those 14 institutions awarded an average of only 24,429 CEU's, although one two-year college awarded 80,000.

	2Year	4YrPub	4YrPri	Other	All
High	80,000	68,000	360	24,429	80,000
Low	4,000	50	---	750	50
Average	26,882	15,471	360	1,435	14,644
Number Reporting	4	6	1	3	14

Response by TOTAL BUDGET:

Four-year public institutions reported both the highest total budget (seven million dollars) and the highest average budgets (slightly under one million dollars). Budgets were not revealed by 6 two-year colleges, 1 four-year public, and 3 four-year private institutions.

	2Year	4YrPub	4YrPri	Other	All
High	2,900,000	7,000,000	1,950,368	5,000,000	7,000,000
Low	1,000	20,000	2,000	5,000	1,000
Average	490,488	919,833	408,767	175,666	500,401
Number Reporting	37	12	7	6	62

Response by SELF-SUPPORTING:

	2Year	4YrPub	4YrPri	Other	Total
Yes	29	8	6	2	45
No	14	5	4	4	27
Total	43	13	10	6	72

Response by PERCEPTION OF FUTURE ACTIVITY:

The chief administrators of Texas non-credit programs view the future with guarded optimism. Half (51%) of all institutions expect to increase non-credit activities during the next year. Public institutions (two-year college by 58%, and four-year by 51%) anticipate increases. Four-year private institutions (30%) and Other types of institutions (33%) are less optimistic.

Only 3 of the 72 institutions anticipate a decrease in next year's

programming.

	2Year	4YrPub	4YrPri	Other	Total
Increase	25	7	3	2	37
Decrease	2	0	0	1	3
Same	16	6	7	3	31

INSTITUTIONAL PROFILE

FOR TWO-YEAR COLLEGES

The continuing education program of a two-year college program in Texas is likely to . . .

- . have a Director as its top administrator,
- . have its top administrator report to a Dean,
- . have 7.6 fulltime administrative, clerical, or technical employees,
- . have 4.5 faculty assigned fulltime to non-credit courses,
- . pay credit instructors $21 per hour,
- . pay non-credit instructors $16 per hour,
- . have completed 8,900 course enrollments in 714 course sections with 300,761 contact hours,
- . not have a system for calculating total CEU's awarded,
- . have awarded a total of 26,882 CEU's, if it does have a system for calculating total CEU's,
- . have a total annual budget of $490,488,
- . have self-supporting non-credit program,
- . expect an increase in non-credit programming activity for the coming year.

INSTITUTIONAL PROFILE

FOR FOUR-YEAR PUBLIC INSTITUTIONS

The continuing education program of a four-year public institution in Texas is like to . . .

- have a Director as its top administrator,
- have its top administrator report to a Vice President or Provost,
- have 7.2 fulltime administrative, clerical, or technical employees,
- have no faculty assigned fulltime to non-credit courses,
- pay credit instructors $36 per hour,
- pay non-credit instructors $28 per hour,
- have completed 7,037 course enrollments in 254 course sections with 171,729 contact hours,
- have a system for calculating total CEU's awarded,
- have awarded a total of 15,471 CEU's, if it does have a system for calculating total CEU's,
- have a total annual budget of $919,833,
- have a self-supporting non-credit program,
- expect an increase in non-credit programming activity for the coming year.

INSTITUTIONAL PROFILE

FOR FOUR-YEAR PRIVATE INSTITUTIONS

The continuing education program of a four-year public institution in Texas is likely to . . .

- Have a Director as its top administrator,
- have its top administrator report to a Vice President or Provost,
- have 3.6 fulltime administrative, clerical, or technical employees,
- have no faculty assigned to non-credit courses,
- pay credit instructors $33 per hour,
- pay non-credit instructors $23 per hour,
- have completed 3,214 course enrollments in 113 course sections with 752,471 contact hours,
- have a system for calculating total CEU's awarded,
- have awarded a total of 360 CEU's, if it does have a system for calculating total CEU's,
- have a total annual budget of $408,767,
- have a self-supporting non-credit program,
- not expect an increase in non-credit programming activity for the coming year.

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