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ABSTRACT

This booklet presents evaluation and audit systems developed to monitor and evaluate student/prcgram success as part of a project designed to improve program and services for disadvantaged and handicapped vocational students at Fresno City College, California. The booklet is divided into the following sections: procedures for implementing and assessing measurable student objectives (includes a student project identification form and a flow chart of project file and evaluation of measured student cbjectives); implementation and evaluation of the student/assessment/support system (includes a flow chart of the student mcnitoring system and a sample copy of a student educational/occupational objectives planning sheet); a copy of a publication entitled "A Guide for Documentation" of Disadvantaged and Handicapped Programs"; State Center Community College District Budget Preparation Instructions 1978-79; and a copy of a test to evaluate material readability. (JH)

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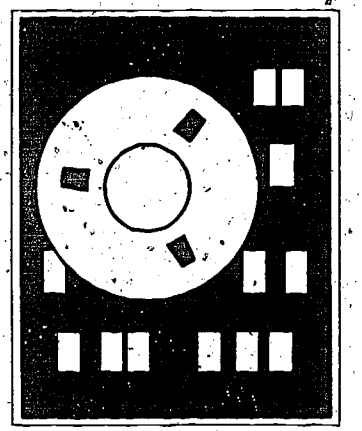
EU166465

"Project: MOBILITY"

A Federally Funded Research & Design Project
for
Disadvantaged and Handicapped Vocational Education Students
(Grant #G007603888)

THE FOLLOWING ARE EVALUATION & AUDIT SYSTEMS
DEVELOPED TO
MONITOR AND EVALUATE STUDENT/PROGRAM SUCCESS



Program Evaluation and Fiscal Audit

Project Director

Mr. Richard Handley
Associate Dean of Instruction
for Occupational Education

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

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RESEARCH AND DESIGN PROJECT
EVALUATION AND AUDIT

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RESEARCH AND DESIGN PROJECT

EVALUATION AND AUDIT SYSTEMS

INTRODUCTION

The material in this booklet will describe for you the project evaluation system, the program and fiscal audit requirements, how program and fiscal audit requirements are fulfilled, and computer support systems.

The Project Evaluation System is designed to provide annual review of progress toward achieving overall project expected outcomes described in the booklet titled "Summary of Phase I Research and Design Project." Management decisions for change requirements in the overall project will be based on this review. Details of the evaluation system developed by Dr. Jerry C. Garlock, Evaluation Consultant to the project, can be found on pages 7-18.

Financial support for disadvantaged and handicapped students' programs and services can and does come from many different sources. In the State Center Community College District, the sources utilized for support are vocational education and other Federal funds, California State support, and local District support. When mixing resources to meet special student needs, all program and fiscal audit requirements are met. A general outline of those requirements are found on pages 19-29.

Program audit has three major requirements: 1) student identification/validation, 2) diagnostic program, 3) prescriptive process. The Extended Family 18-Step Model found on pages 45-68 of the booklet in the Counseling Guidance Section of this box fulfills all three major requirements.

To fulfill the student identification requirement, Fresno City College uses the Student Accountability Model (S.A.M.) for the first level of analysis to identify vocational education majors. This system is described in detail in the other booklet in this Evaluation and Audit Section. With the student identified as a vocational student, the system searches the student's record file for previously determined indicators that identify disadvantaged/handicapped students. Those indicators might include: grade point average, financial aid status, the lack of a high school diploma, physical handicaps, and ethnicity. This system provides only a partial identification of the disadvantaged and handicapped students. The referral system and testing program that are parts of the Extended Family Program provide the balance of the identification process.

The referral system is basically a communication method that places the identified disadvantaged student (students not succeeding in a regular program) in contact with the Extended Family process. The referral system is initiated by either the student, teacher, or the regular counseling process. The Extended Family counselor then validates the disadvantaged/handicapped problem and enters the student into the Extended Family 18-Step Model.

The student assessment that will be used is designed to determine the student's ability level in a number of basic skills required for program success. Students with ability levels below program and course performance standards are validated as academic disadvantaged students.

All validation data is retained by the Extended Family counselor. The identification of validated disadvantaged/physically handicapped students is key punched on cards and stored in the computer system for later use.

The above processes are the methods used by the Research/Design Project to fulfill the identification/validation requirement for that part of program audit.

By following the detailed description of the Extended Family 18-Step Model, you will see that steps 4.0 through 11.0 are the diagnostic process. The student folder retained by the counselor will contain all work sheets and plans of action to validate the student's problems. Steps 12 and 13 will identify services required to support the student. The expenditure of vocational education funds for each student is justified through this process.

The kinds of services that support disadvantaged and physically handicapped vocational education students are also helpful to students other than vocational. In California, the State supports ethnic minorities, physically handicapped and regular students with special needs. Federal support other than V.E.A. is available for students with special need. By developing a student support system utilizing all available resources, all students with special needs can be helped providing you have the budget and accounting systems that will provide separate fiscal audit trails for each resource used. On page 31 you will find the budgeting/accounting process used by the State Center Community College District. The system provides for activity centers that isolate vocational instructional programs and special student services for budgeting and accounting purposes. Also, you will find within the budgeting/accounting process a page of object codes, page 38. This code system is from the California Accounting Manual for Community Colleges. This coding system identifies the type of expenditure being made. Page 40 provides information about the coding system unique to our District that identifies the special funding source supporting each expenditure. The numbering is combined into a budget number that represents the organization,

activity center, expenditure item, and funding resource. For example: 223000-6000-121-VJ--which translated means; "2", Fresno City College; "2", Instructional Services; "3000", Occupational Education; "6000", Office; "121", Salary; "VJ", Vocational Education General.

All systems together provide each program or service with an expenditure history annually for determining direct cost of each program and service. Each instructional program (tutorial, remedial, etc.) and student service designed to meet the needs of disadvantaged/handicapped students can now be charged to each student served on a cost-per-hour or cost-per-head or cost-per-service-unit; whatever is suitable for the type of service. An example of this can be found on page 41, showing how Fresno City College uses student attendance as a basis for prorating the cost of the Tutorial Activity Center #221403-6100 to five different categorical resources. Such a fiscal tracking system satisfies the fiscal requirements for categorical State and Federal dollars. It takes much of the difficulty out of accounting for expenditures and opens up categorical funds as a viable source of dollars required to support innovative and remedial programs and services.

The final computer program obtained by the project is the STAR system (Simple Test Approach for Readability). We obtained this program from General Motors Corporation, see pages 43-54. All programming instructions are included in these materials. Once programmed with STAR, the computer can quickly and accurately determine the level of reading difficulty of printed instructional material, and even isolate all the words of difficulty (three syllables or more). The project will use this program as the basis of evaluating the printed media of instruction. This data will then serve to specifically define the size of the gap which exists

between the student skill levels and the requirements of the media. This will help us to both weed out inappropriate media and design remedial programs with greater precision.

PROCEDURES FOR IMPLEMENTING AND ASSESSING

MEASURABLE STUDENT OBJECTIVES

The evaluation of the eight areas of the measurable student objective were analyzed to determine the feasibility of continuing the proposed plan as outlined in the Research and Design Project For Disadvantaged Students Programs-Summary of Final Report Phase I. No changes of tests from those identified in the proposal are recommended. In fact, the proposal stated that, "Since the needs assessment data were to collected, Educational Testing Service has discontinued publication and scoring of the Junior College Placement Program; therefore, another suitable standardized test or tests will be selected to measure the above four variables," it was concluded that the Junior College Placement Program; was the most valuable test available. Although this instrument is out of print, it is recommended that the instrument should be duplicated with the publishers permission and the responses to the instrument be completed on a Scantron answer sheet and the data keypunched on cards ready for computer processing.

All of the instruments used in the assessment process have been field tested in preliminary studies and have been bound to be reliable and valid. No substitute instruments were found to be an improvement of these instruments in light of (1) the validity of assessment, (2) field testing for the geographical area assessed, and (3) the prior usage of the instruments by the district.

The eight areas were assessed by the means A computer system labelled "Project System" unique to the project. Data from the S A M system are used in the "Project System" but inasmuch as the "Project System" has unique input and output data different from existing systems a new student file and a new system was developed. These systems are outlined in the flow chart diagram. Computer programs are to be completed by Dr. Jerry C. Garlock. The input forms that are of four types including: (1) A Student Project Identification Form that is to be completed by staff members who complete the form with minimal information of name; social security number, control or experimental category, and which of the five instructional programs the student belongs; (2) tests or investories which have student responses on SCANTRON Scoring sheets; (3) tests or inventories which have student responses on publisher answer sheets; and (4) tests or inventories which have student responses on answer sheets that are hand scored or tallied. None of the four input modes just described

derive data processing cards directly with the possible exception of when (and if) the tests are sent to test publishers to be processed. Generally then, the data obtained from the above four areas are key punched. The card format used for key punching is shown in the card layout. This card is of a general format thus having the advantage of consistency among input forms. These input data processing cards have the flexibility of being added to the system at any time and in any quantity.

Annual (or on call) outputs of the system consists of a printout of: (1) the number of students of each group, (2) the means of each group, (3) standard deviations of each group, (4) t-ratios between the groups, and (5) the resulting probabilities in terms of level of confidence. Comparisons are to be made between the experimental and control groups as well as between all combinations of the five instructional areas and handicapped groups.

From the results of these data the following hypotheses of the proposal will be either accepted or rejected. (1) There will be no statistically significant differences in the following attitudes between target disadvantage students and control students representative of the college as a whole:

a. Spontaneity as measured by the Personal Orientation Inventory.
b. Lability as measured by the Personal Orientation Inventory.
c. Agression as measured by the Adjective Check List.
d. Succorance as measured by the Adjective Check List.

(2) There will be no statistically significant differences in the following personal growth/fulfillment variables between target disadvantaged students and control student representative of the college as a whole:

a. Number of Unfavorable Adjectives Checked in Self-Descriptiion as measured by the Adjective Check list.
b. Self-confience as measured by the Adjective Check list.
c. Total number of Adjective Checked in Self-description as measured by the Adjective Check List.
d. Self-control as measured by the Adjective Check list.
e. Personal adjustment as measured by the Adjective Check List.

(3) There will be no statistically significant differences in the following skills/knowledge variables between target disadvantaged students and control students representative of the college as a whole:

a. English Usage Skills as measured by the Junior College Placement Programs.
b. Reading as measured by the Junior College Placement Program.
c. Mathematics as measured by the Junior College Placement Program.
d. Educational ability as measured by the Junior College Placement Program.
e. Study Habits as measured by the Junior College Placement Program.

(4) There will be no significant difference in the following personal productive life variables between target disadvantaged students and control student representative of the college as a whole.

a. Responsibility as measured by the California Psychological Inventory.
b. Achievement via Independence as measured by the California Psychological Inventory.

Procedures to implement and assess the student objectives of Grade Point Average, Retention rates of those in the program, Retention completion, and affirmative action (including sex and ethnicity) employed another approach than those used for inventories. The Flowchart of Project File and Evaluation of measured Student Objectives of GPA's, Retention Rates, and Retention Completion indicates the tasks and programs that are necessary to complete the implementation and assessment aspects of the project. Inasmuch as grade point average information, retention information, sex and ethnicity are presently on the SAM system, these data are identified and retrieved from the system by means of entering the system through a data processing card based on a developed Student Identification Form. Since the SAM file is essentially a complete system, it was presumed desirable to extract the data from the SAM System and develop a small system that would be independent of the SAM System. It would require more effort to patch an existing system rather than develop a new mini system. The data to be taken from the SAM System would be either from a card or tape output. These would be used as input data in conjuction with the project file which after employing four programs would yield the needed statistic including significance of differences. Annual outputs of the system consist of a printout of the GPA t-ratios as well as N's, means, standard deviations and significance levels. Retention rates, retention/completion, an sex rates are reported as percentages and significant differences between two percentages. The chi-square technique is applied to the ethnic distributions to determine significances of differences.

Comparisons for these three areas are to be made between the experimental and control groups as well as between all combinations of the five instructional areas and handicapped groups.

From the results of these data the following hypotheses of the proposal will be either accepted or rejected.

a. There will be no statistically significant difference in the retention rates between target disadvantaged students and control students representative of the college as a whole.
b. There will be no statistically significant difference between control students representative of the college as a whole and target disadvantage minority and/or women students in recruitment and enrollment rates into target vocational education programs.
c. There will be no statistically significant difference in the program completion rates (in the target vocational education programs) between the given disadvantaged students and control students representative of the college as a whole.
d. There will be no statisically significant difference in the grade point averages between the given disadvantaged students participating in the target vocational programs and control students representative of the college as a whole.

STUDENT PROJECT IDENTIFICATION FORM

☐ Handicapped

☐ Disadvantaged

☐ Control Group

PROGRAM

1. ☐ Automotive
2. ☐ Electronics
3. ☐ LVN
4. ☐ RN
5. ☐ Secretarial Science
6. ☐ Other

Student Name	S.S. Number	Date	code	SCORES OR RESPONSES																			
				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
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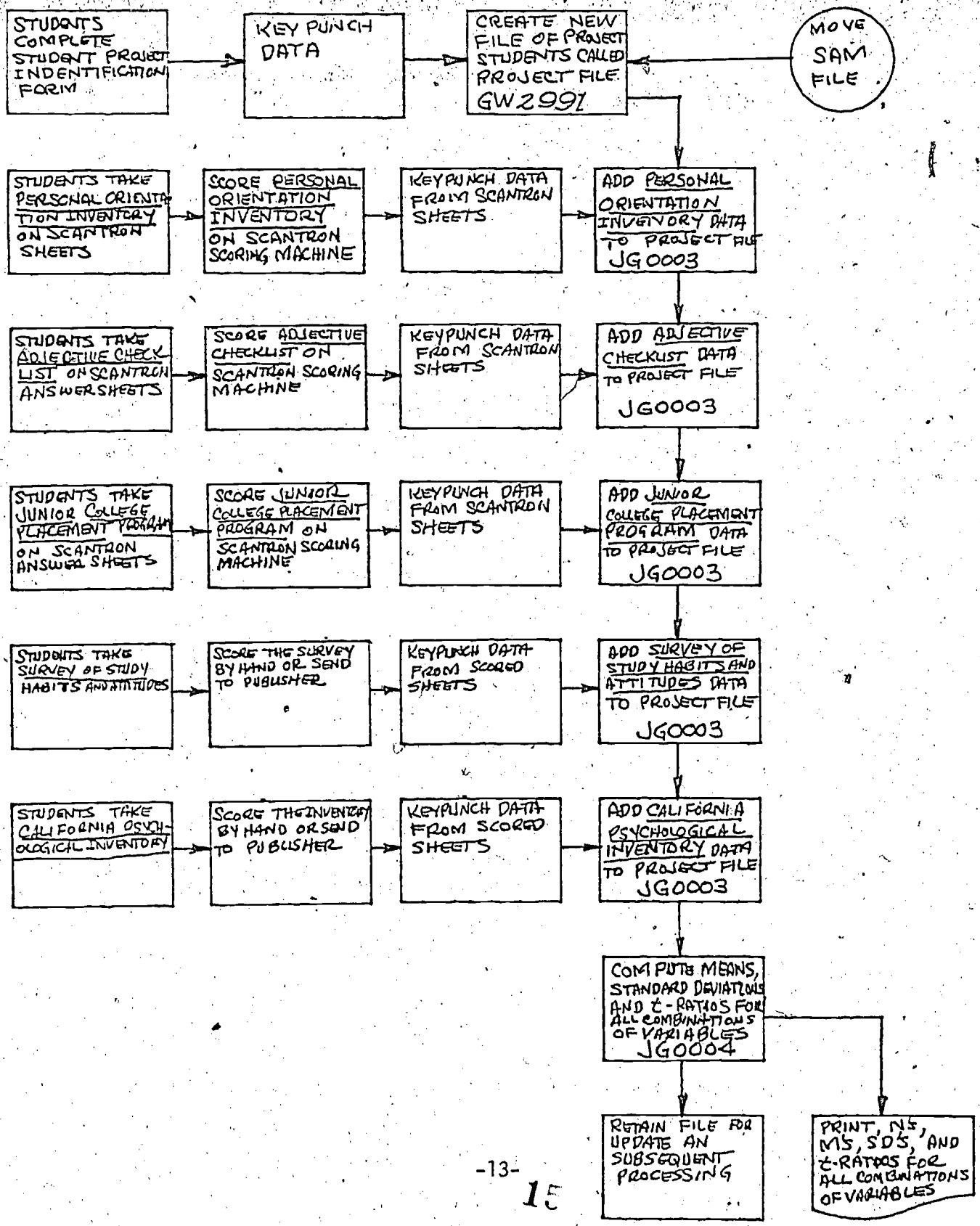
CLOSE NO. STANDARD FORM 508

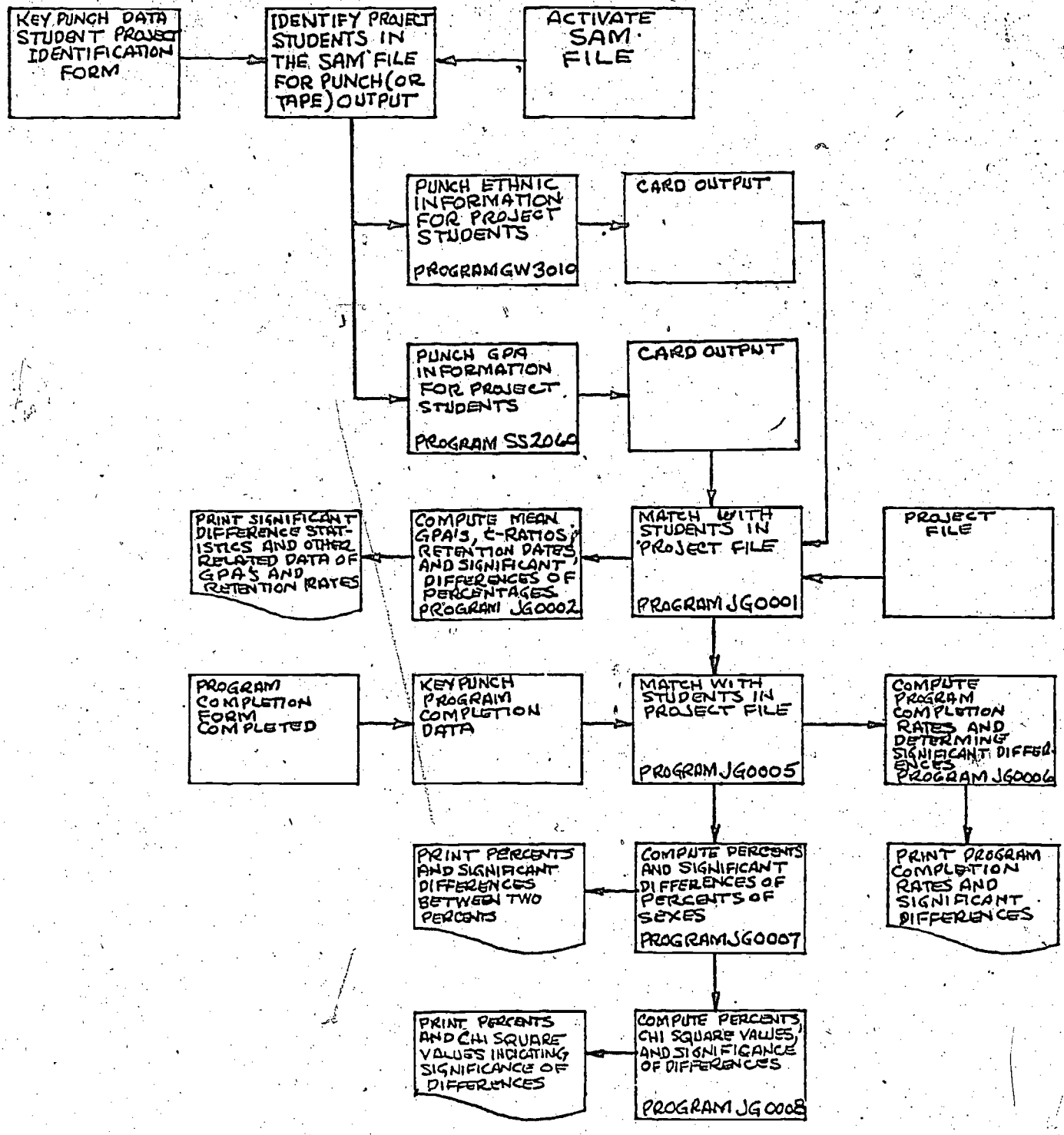
FLOWCHART OF PROJECT FILE AND EVALUATION OF MEASURED STUDENT OBJECTIVES

TESTS AND INVENTORIES



FLOWCHART OF PROJECT FILE AND EVALUATION OF MEASURED STUDENT OBJECTIVES

GPA, RETENTION RATES, RETENTION COMPLETION, AND AFFIRMATIVE ACTION OUTCOMES



IMPLEMENTATION AND EVALUATION OF THE STUDENT IDENTIFICATION/ASSESSMENT/SUPPORT SYSTEM

To implement and evaluate the Student Identification/assessment/Support System so that it is applicable to data processing techniques the following procedure is outlined according to the Flowchart of Student/Monitoring System.

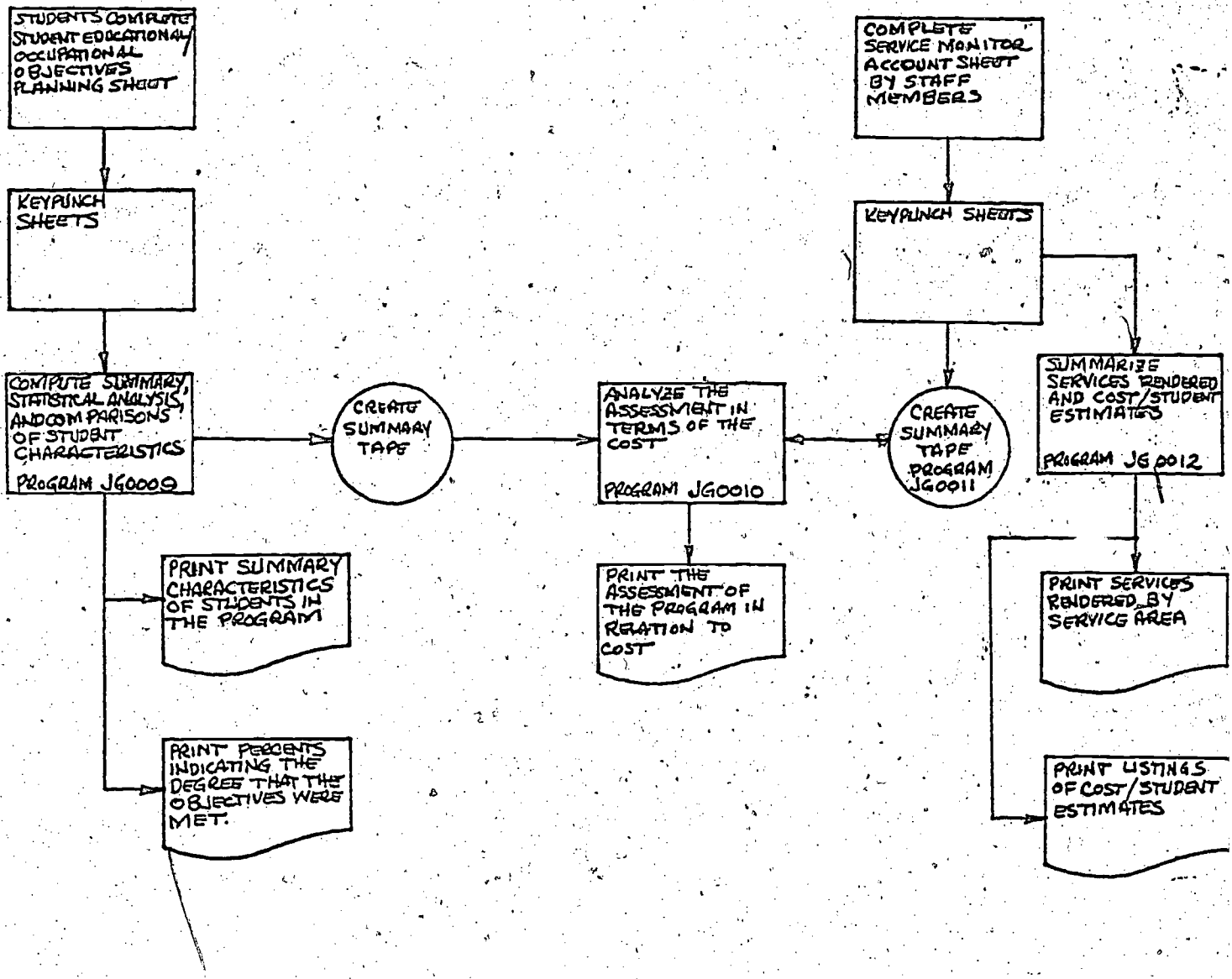
Tow forms were developed which are completed and entered into the system. The first form is entitled the Student Educational Occupational Objectives Planning SHeet. This sheet is oompleted by the students. A copy of this sheet is included in the present report. Data from these completed sheets are keypunched and submitted to the computer utilizing program JG0009. This program (1) summarizes the characteristics of the students in the various programs, analyzes the data through chi-square analysis and computes the degree that the objectives were met. The program provides printouts of these data and a magnetic tape summary which is to be used as an input to program JG0010.

The second form used in the system is the Service Monitor Account Sheet which is completed by staff members. A copy of this form is included in the present report. The completed forms are keypunched and submitted to the computer utilizing programs JG0011, JG0010, and JG0012. These programs are designed to enter the system and summarize the program in terms of services rendered, costs/students, and an assessment of the program in terms of costs.

Inasmuch as the system as outlined involves mainly data that are independent of the SAM System any attempt to include the present system in the SAM System would be inefficient. Therefore, the present system was developed as an independent system. As the system becomes operational, and at that time, if advisable, it could be integrated into the SAM system. Such advisability would include such considerations as time and costs to include into the system, availability of computer time, and reconciliation of advantages and disadvantages of the consolidation or independence of the systems.

FLOWCHART OF STUDENT MONITORING SYSTEM

(INDEPENDENT OF THE SAM SYSTEM)



S T U D E N T E D U C A T I O N A L/O C C U P A T I O N A L
O B J E C T I V E S P L A N N I N G S H E E T

Name of Student _____ Social Security number _____ Date _____

riginal plan
evised plan

- ☐ Program
- ☐ Automotice
- ☐ Electronic
- ☐ LVN
- ☐ RN
- ☐ Secretarial Science
- ☐ Other

- ☐ Original counselor/advisor (initial) _____
- ☐ Revised counselor/advisor (initial) _____
- ☐ Final counselor/advisor/assessor _____

- ☐ Male
- ☐ Female

- ☐ Anglo Saxon
- ☐ Black
- ☐ Indian
- ☐ Mexican-American
- ☐ Oriental
- ☐ Other

bjective umber	Indicate what is to be mastered (Objective)	Date Objective to be met	How measured techniques or methods	Assessment code number	Time committment code	Audit code

ssessment Code
- Showed no difference
- Fell considerably short of objective
- Fell slightly short of objective
- Met Objective Closely
- Exceeded objective slightly
- Exceeded objective considerably

Time Commitment Code
1. Objective met prior to {original / revised} date agreed _____
2. Objective met according to {original / revised} date agreed _____
3. Objective met after {original / revised} date agreed _____

Audit Code
Verification of the students' product or data to meet the objective is:
1. Not auditable
2. Available on campus records.
3. Available in the students folder.

SERVICE MONITOR ACCOUNT SHEET

Program or Service _____

(Complete a line for each visit)

STUDENT NAME	Social Sercurity number	Type of Service or assistance rendered	Date	Prepared* by	Initial	Time of** Service (session)	Number of Students in the session

*Code indicating who performed service

1. Volunteer worker
2. Student (Tutor, aide, etc)
3. Clerical worker
4. Non-certificated Assistant
5. Instructor
6. Counselor
7. Administrator
8. Other

** Time of Service

6 min= .1	36 min=.6
12 min= .2	42 min=.7
18 min= .3	48 min=.8
24 min= .4	54 min=.9
30 min= .5	60 min=1.0

Guide for Documentation of Disadvantaged and Handicapped Programs

Under
Vocational Education Amendments
of 1968
(P.L. 90-576)

This publication, which was funded under the provisions of the Vocational Education Act, was edited and prepared for photo-offset production by the Bureau of Publications, California State Department of Education, and was published by the Department, 721 Capitol Mall, Sacramento, CA 95814. The activity which is the subject of this report was supported in whole or in part by the U.S. Office of Education, Department of Health, Education, and Welfare. However, the opinions expressed herein do not necessarily reflect the position or policy of the U.S. Office of Education, and no official endorsement by the U.S. Office of Education should be inferred.

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1977

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Introduction

During audits of the Vocational Education Act (VEA) claims on behalf of the California State Department of Education and the California Community Colleges, the certified public accounting firm of Coopers & Lybrand has found that programs for the disadvantaged and handicapped were the programs that had the most audit exceptions. This finding should be no surprise to the readers of this paper, because extensive discussions, carried on for years, have explored the problems associated with identifying and serving disadvantaged and handicapped vocational students.

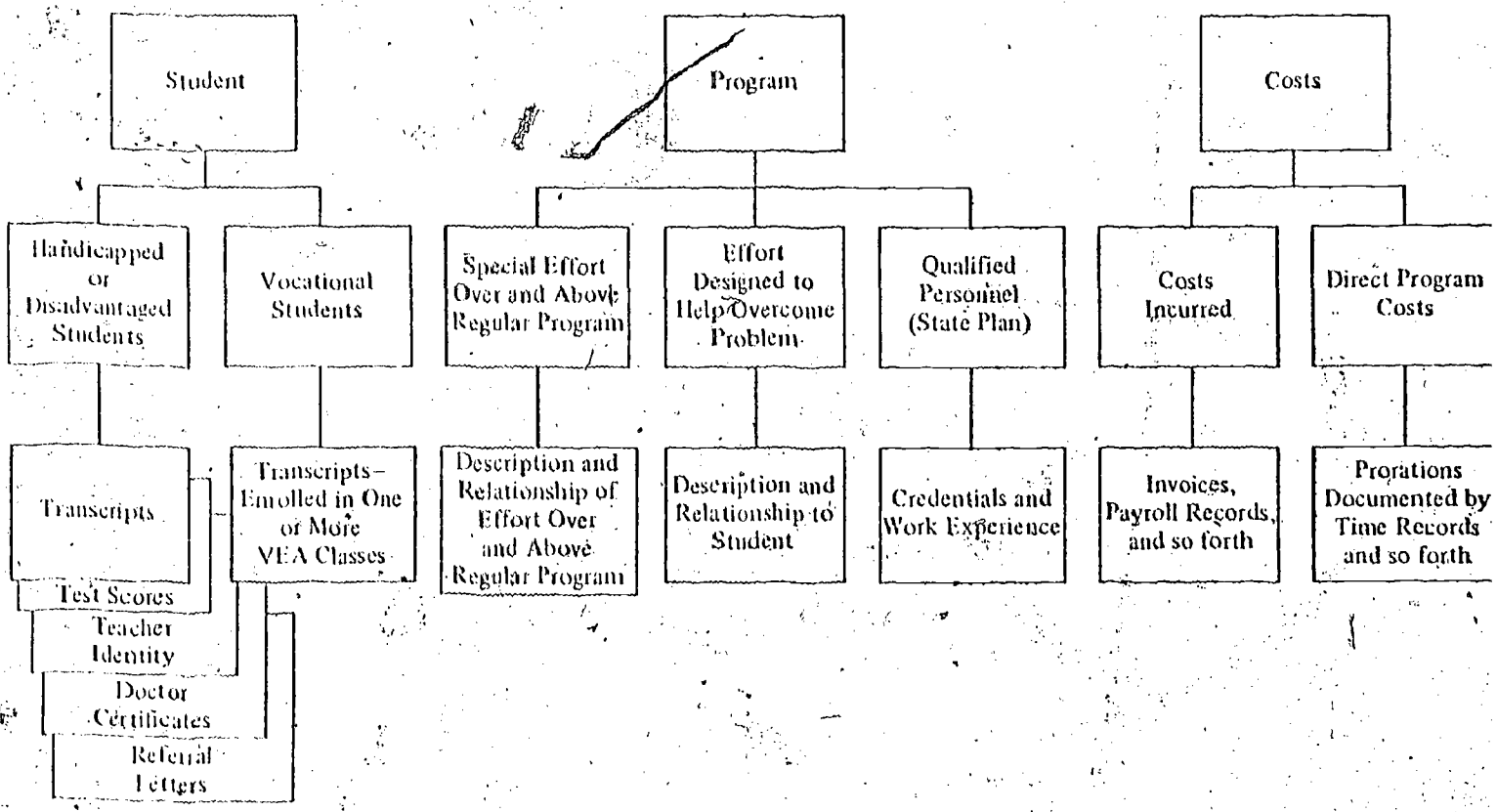
Numerous publications (partial list in the bibliography) provide guidelines for the basic issues of identification, classification, and design of programs to assist the disadvantaged and handicapped students. These documents provide a substantial base of information and generally answer most of the questions concerning the basic issues related to both the level and type of service that must be provided.

The area not addressed by existing publications concerns the standards for the documentation that is necessary to substantiate, in an after-the-fact audit, that the special programs provided did comply with the legal requirements. Insufficient documentation, rather than inappropriate programs, was the cause of the majority of the audit exceptions relating to programs for disadvantaged and handicapped persons.

This publication was prepared by Coopers & Lybrand to synthesize the documentation requirements for programs for disadvantaged and handicapped persons. The information presented herein represents the documentation standards expected by Coopers & Lybrand during audits of VEA claims. These standards do not necessarily represent the opinion of the U.S. Office of Education; the Department of Health, Education, and Welfare; the California State Department of Education; or the California Community Colleges.

The overview chart that follows and the accompanying explanatory comments describe the three segments (students, programs, and costs) in each program, all of which must be documented as qualified. The characteristics of each program segment that must be documented are presented on the second tier of the chart. The bottom level of the chart includes examples of documents that, if properly assembled, would constitute documentation of each of the program characteristics. Acceptable documentation is not, of course, limited to the examples indicated. Generally, any type of documentation will be acceptable if it provides quantifiable support for the particular program characteristic and can be verified by audit procedures.

Overview Chart
Vocational Education Act
Guide to Documentation of Disadvantaged and Handicapped Programs
Under the Vocational Education Amendments of 1968 (P.L. 90-576)



Explanatory Comments

The costs of programs for disadvantaged and handicapped students qualify for reimbursement with Part B funds only if all three program segments (students, programs, and costs) qualify. Each of these segments has certain characteristics, all of which must be documented to substantiate the qualification of the program.

The following comments describe the general segments and detailed characteristics that must be documented to adequately support the claim for funds. Examples are provided as to the application of the criteria for determining qualified costs and as to the types of documentation necessary in an audit situation.

Student Characteristics

The first requirement is that the students served by the program meet the student characteristics requirements (i.e., disadvantaged or handicapped *and* vocational). To document that the participants have these characteristics requires an identification of the participants by name.

Disadvantaged or Handicapped Students

The first criterion that participants must meet is to be disadvantaged or handicapped. They must be students who for some reason are not succeeding or are not able to succeed in vocational education without special assistance. The difference between disadvantaged and handicapped students is based on the nature of the students' problems. As defined in Public Law 90-576, Section 122(a) (4) (B), handicapped students generally have physical, mental, or health disorders. All other symptoms fall under one or more categories of disadvantagement.

Documentation of the disadvantaged or handicapped condition entails keeping records on each student to describe the identified reasons the students are not succeeding or cannot succeed in vocational education and the service proposed to help the students succeed. This documentation is sometimes called the *diagnosis* and the *prescription.*

Almost any type of documentation is acceptable in an audit situation if it demonstrates objectively that the student needs help to succeed in vocational education programs. The documentation can range from concrete evidence, such as transcripts demonstrating a history of failures, to *judgment* of teachers or counselors stated on signed student-analysis forms prepared prior to providing the service.

Vocational Students

A general rule is that funds for programs for the disadvantaged and handicapped can be used to benefit only vocational students. The definition of a vocational student applied by Coopers & Lybrand is, generally, "any student enrolled in one or more vocational classes." Vocational classes, for this purpose, are those classes for which costs are reported under Part B of the act.

Two exceptions to the general definition of vocational students are as follows:

1. Prevocational students—Those disadvantaged or handicpped students being provided training in basic skills (reading, mathematics, and so forth) who eventually enroll in one or more vocational classes.
2. Regional occupational programs and centers (ROP/C) students—Students enrolled in ROP/C classes qualify as vocational students even though the enrollment is in another instructional institution.

Documentation of the vocational characteristic of disadvantaged and handicapped students is most easily accomplished with copies of the transcripts of all participants.

Qualified Program

The identification of the students and their particular problems is called the *diagnosis* and *prescription,* and the actual service provided is often called the *cure.* A qualified program must have the following three characteristics:

1. It must involve a *special effort* over and above the regular program.
2. This effort must be *designed to help* overcome the students' problems.
3. Personnel conducting the program must be qualified as specified in the *State Plan for Vocational Education.*

Documentation of these characteristics overlaps with the identification of the students in that the program must be associated with the *diagnosis* on a student-by-student basis.

Special Effort

The regular educational effort is the responsibility of the school district and is already supplemented with the unrestricted Part B funds. The programs for disadvantaged and handicapped students must offer incremental services that are not generally available to all students. For example, the identification of disadvantaged and handicapped students in regular classrooms does not constitute a qualified program unless a special program is provided, such as providing teachers' aides in the classroom. The cost of the special effort (salary of the aides) would be the qualified costs for reimbursement with funds provided for programs for disadvantaged and handicapped persons.

Ancillary support services, such as tutoring, would qualify to the extent of costs expended in connection with services provided to disadvantaged or handicapped vocational education students if those services match the prescription for the students' problems.

Documentation of the effort as a *special effort* depends on the nature of the program. In the examples of aides and tutoring, the supplemental nature of the program is sufficient documentation of the special effort. The major documentation problem in clearly supplemental programs is documentation that only qualified students were served. If both qualified and unqualified students are served, documentation must be maintained on that portion of the effort for qualified students.

In the case of classroom instruction, documentation is necessary to demonstrate that a unique effort specifically designed to compensate for the students' problems is included.

Examples of the classroom instruction that would be designed to help disadvantaged and handicapped students succeed would include the following:

- Reduced student/teacher ratio (documented by enrollment statistics)
- Self-paced learning for slow students (documented by course descriptions)
- Equipment designed for handicapped (documented by invoices and physical characteristics of the equipment)
- Classes at a continuation high school or other duplicate facility (documented by class schedules)

Programs that include routine classes of an exciting nature that might motivate otherwise unsuccessful students are not considered to be qualified programs on that basis alone.

Relating Program to Problem

The objective of these special programs is to help disadvantaged and handicapped students succeed in vocational education by either overcoming their problems or learning to succeed in spite of their problems. With this objective, qualified programs must relate to the identified problem; that is, academic support for academic problems, economic support for economic problems, and so forth.

Providing transportation between campuses or to a community classroom or work experience job site would be a qualified program for economically disadvantaged students if they could not afford to provide their own transportation. On the other hand, such transportation for a person not succeeding because of an academic disadvantage would not be a qualified program, since it would not meet the student's need for academic support. Similarly, academic support (tutoring, aides, and so forth) would not be a qualified program for students with only economic disadvantages.

The link between the students' problems (diagnosis) and the program is the students' need (prescription). Documentation of this link is critical and can best be accomplished by means of a single form that contains a case history for each student. This history should describe the *problem*, the *prescription*, and the *program*.

Qualified Personnel

As with any vocational program, the personnel providing services to disadvantaged and handicapped students must meet the qualification standards of the *State Plan for Vocational Education*. These qualification standards involve a combination of appropriate credentials and work experience.

The areas most frequently having audit exceptions with regard to personnel qualifications are those connected with programs for handicapped students. The instructors of programs for handicapped students frequently have the necessary special education credentials but not the appro-

riate vocational education credentials or experience.

Documentation of personnel qualifications is generally available in personnel files. However, personnel files are sometimes deficient in the documentation of work experience. To have such documentation readily available, vocational education directors should survey their vocational instructors and counselors regarding work experience.

Costs

After it has been established that a program is qualified, the remaining objective is to determine the cost of the program. The characteristics of qualified costs are that they (1) were incurred; (2) were incurred directly for qualified programs; and (3) are verifiable by quantitative documentation.

Incurred Costs

The requirement that costs actually be incurred would appear so obvious that it would seem unnecessary to mention. However, the following three topics are worthy of discussion:

1. Actual cost—VEA claims are sometimes prepared from such preliminary information as budget transfers, purchase requisitions, or purchase orders. Only actual expenditures are allowable costs, and they can vary considerably from preliminary estimates.
2. Encumbered expenditures—Expenditures incurred *or encumbered* by June 30 qualify. Encumbered amounts are for those items for which a legal commitment is made, such as by a purchase order issued by June 30 of the program year. Care must be taken not to claim encumbered items in both the year of encumbrance *and* the year of payment.
3. Capital outlay—Capital outlay expenditures are allowable when the equipment purchased is used in qualified programs. A problem arises when a district reports on Form VE-4b, "Supplemental Declarations," that it will not use federal funds for capital outlay and then does so anyway in programs for the disadvantaged and handicapped. This practice will result in an audit exception and may mean that a district will have to refund funds so expended.

Documenting that costs were actually incurred is a relatively routine matter of maintaining the workpapers necessary to provide an audit trail to the documents accumulated by the accounting system. Such documents include invoices, payroll records, travel vouchers, cancelled warrants, and so forth.

Direct Program Costs

The last, and sometimes the most difficult, documentation requirement is to substantiate that reported costs were incurred directly for programs for the disadvantaged and handicapped students. Usually, two types of prorations are necessary when calculating direct program costs:

1. The costs partially allocable to the program
2. The portion of program costs allocable to qualified participants

The first step in determining the allowable costs is to identify the cost of the total effort. If costs are directly incurred for the program (supplies, full-time salaries, and so forth) little difficulty is encountered in determining cost. However, when costs are allocable partially to the program (portion of full-time salaries, portion of usage of equipment, and so forth), then that portion of the total cost that is related to the program is allowable. For example, if an instructor is assigned for two-fifths of the day to a tutorial center, then two-fifths of the related salary would be direct costs of the tutorial program. Similarly, if a computer terminal were purchased for use in a computer programming class for disadvantaged students and four other classes (nondisadvantaged) used the machine, then only one-fifth of the cost of the terminal would be a direct cost of the program.

Documentation must substantiate that costs charged to programs for disadvantaged and handicapped students were expended directly for the programs. To develop the proportionate share of allocable costs entails identifying the total usage of the related personnel, supplies, and equipment and identifying the specific program usage. For classroom-type programs, this proration documentation is usually relatively simple. The documentation can be in the form of class schedules, personnel assignments, and so forth. However, for support activities, such as counseling or administration of the programs (proportion of vocational education director's salary), the proration documentation is more difficult to assemble. In some cases comprehensive allocation of effort can be documented only through daily time logs.

After the direct costs of the total effort are identified and documented as described in the preceding paragraph, a second level of proration

may be necessary. If only some of the participants are qualified or only a portion of the program is qualified, then only a portion of the total program costs would qualify. However, as previously stated, only the costs of qualified programs can be prorated in this manner. The mere presence of disadvantaged or handicapped students in a regular program *does not* justify charging a portion of the regular program costs to programs for disadvantaged and handicapped students.

Therefore, in qualified programs in which only some of the participants are qualified, documentation must be maintained to substantiate the portion of the effort expended for the qualified students. In the absence of more definitive records, documentation of the ratio of qualified to total participants will generally be acceptable documentation of the portion of effort expended for the qualified participants.

To demonstrate this proration concept, assume that the program is a tutorial effort that does as follows:

- Requires ⅕ of a $20,000-a-year teacher's time ($4,000 direct cost)
- Serves 30 students

  Ten vocational-disadvantaged
  Ten vocational-not disadvantaged
  Ten not vocational or disadvantaged

Without consideration of the program qualifications (i.e., whether tutoring services were the prescription for the students' problems), the program qualifies only to the extent of qualified students served.

Therefore, the qualified program costs would be $1,333—one-third (ten vocational-disadvantaged of the total 30) of the total program costs of $4,000.

To use this example to demonstrate the further proration complexities that must be considered, assume that of the ten vocational-disadvantaged participants:

- Three were receiving supplemental instruction in their vocational classes.
- Three were receiving reading instruction identified as necessary to succeed in their vocational classes.
- Four were receiving supplemental instruction in nonvocational classes.

In this case only six of the 30 students (or 20 percent) would qualify because, even though the last four were vocational and disadvantaged students, the service provided was unrelated to helping them succeed in vocational education. Therefore, 20 percent of the $4,000 program cost, or $800, would be the qualified cost.

One last example would be to assume the same facts as in the above example, except assume that the ten participants who were disadvantaged but not vocational were prevocational. That is, being tutored in basic skills (reading, mathematics, and so forth) to elevate them to the level necessary to enter a vocational program.

If nine of those ten nonvocational-disadvantaged students in a prevocational program were to eventually enroll in a vocational program, they would be qualified participants. For example, under these conditions the qualified program costs could be as follows:

Six vocational-disadvantaged students plus nine prevocational-disadvantaged students equals 15 qualified participants. This number divided by the total number of participants (30) would result in 50 percent of the costs being qualified. The total costs would be $4,000, and the qualified costs would be $2,000.

The requirement to prorate program costs, based on the proportion of qualified participants, is a strain on the budgetary process because the reimbursable costs are dependent on after-the-fact determinations. The only solution currently known to this very real practical problem is to provide distinct separate programs in which all participants would be qualified. While desirable from a fiscal viewpoint, separate programs may not offer the best educational opportunities for the students. This is a problem that must be resolved by each district.

Conclusion

While the preceding comments relate to programs for the disadvantaged and handicapped students under the Vocational Education Amendments of 1968, the concepts will likely carry forward to the Vocational Education Amendments of 1976. In fact, the problems will be intensified by the new act's increase in the minimum level of effort from 15 percent disadvantaged and 10 percent handicapped, with no required local matching, to 20 percent disadvantaged and 10 percent handicapped with a required one-to-one local matching.

A two-word summary of this discussion of the disadvantaged and handicapped problems is "workpaper documentation." To be defensible in an audit, workpapers must be prepared at the time the claim is filed. For each special program (effort), the workpapers should document the answers to these seven questions:

1. Were the participants disadvantaged (or handicapped)?
2. Were the participants enrolled in one or more vocational classes?
3. Was the effort a service over and above the normal vocational education program?
4. Did the nature of the service correspond to the students' identified need?
5. Did the personnel meet the qualification criteria of the *State Plan for Vocational Education?*
6. Were the reported costs actually incurred?
7. Were the reported costs directly incurred for the effort and only for the portion of the effort dedicated to qualified participants?

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STATE CENTER COMMUNITY COLLEGE DISTRICT

BUDGET PREPARATION INSTRUCTIONS

1978 - 1979

The budget process involves estimating expenses which will occur a year in the future. To assist you in the process you have been provided with various work sheets described below.

Your budget packet includes the following:

1. "Fiscal Year 78-79 Budget Requests" work sheet (Computer Print-out)
2. Certificated Staff Complement, Regular Schedules work sheet (Computer Print-out)
3. Certificated Staff Complement, Other Schedules work sheet (Form A)
4. Classified Staff Complement, Classified Service work sheet (Computer Print-out)
5. Classified Staff Complement, Other Classified, work sheet (Form B)
6. Classified Staff Complement, Other, Student work sheet (Form C)
7. Object of Expenditure work sheet (Computer Print-out)
8. Equipment Replacement work sheet (Form D)
9. Equipment Repair & Maintenance work sheet (Form E)
10. New Equipment Purchase work sheet (Form F)

These work sheets are to be completed in the following manner:

1. Fiscal Year 1978-79 Budget Request work sheets: This is the summary work sheet and is, thus, the last one completed. Total dollars (and hours where appropriate) should be carried forward from the various back-up work sheets and entered on this summary.

2. Certificated Staff Complement, Regular Schedules work sheet: This work sheet lists the regular certificated employees shown on the district payroll records, as of December 1977, who are being charged to your budget organization during the current year. The percent of time worked by each staff member in your organization is also listed. Please verify your staff complement and the percent of time worked for the current year, indicating any corrections. Enter your 1978-79 staff complement and percent of time for each staff member on the right of this work sheet. The salaries will be computed and entered on the "Fiscal Year 1978-79 Budget Requests" work sheet by District Business Office.

3. Certificated Staff Complement, Other Schedules work sheet: List on this work sheet the hours as indicated and carry forward to budget request work sheet. The salaries will be computed and entered on the "Fiscal Year 1978-79 Budget Requests" work sheet by the District Business Office.

4. Classified Staff Complement, Classified Service work sheet: This work sheet is for regular classified staff members. Complete as the Certificated Staff Complement work sheet, Item 1 above.

5. Classified Staff Complement, Other Classified work sheet: This work sheet is for the classified hourly help. Complete as in Item 2 above, except also fill in the wages and extend the total cost to the appropriate blanks. Total the 1978-79 requests by Object Code and bring these totals forward to enter on the "Fiscal Year 1978-79 Budget Requests" work sheet. Enter both total hours and amount in the appropriate columns and next to the proper object code indicated on the "Fiscal Year 1978-79 Budget Requests" work sheet.

6. Classified Staff Complement, Other Student work sheet: This work sheet is for student help only and is to be segregated into students utilized in non-instructional and instructional capacities.

7. Object of Expenditure work sheet: This work sheet is used to list specific budget requests for books, supplies and all other expenditures, except for personnel costs. Note that the work sheets described in the following Items 8, 9 and 10 must be completed before Equipment Replacement, Equipment Repair or Capital Outlay expenditures may be completed on the Object of Expenditure work sheet. After this work sheet has been completed, bring the total amounts for each object code category (410, 420, 430, 480, 510, 520, etc.) forward to the "Fiscal Year 78-79 Budget Requests" work sheet and enter them in the 78-79 Requests--Amount Column. Please be sure to enter the amounts opposite the correct object code.

8. Equipment Replacement work sheet: Enter equipment replacement items on this work sheet in the appropriate areas. Describe the item and indicate the suggested vendor and the quantity desired. List the unit price and compute the total cost for each of the items. Total the cost of items for each Object Code and enter the total in the appropriate blank on the Object of Expenditure work sheet.

9. Equipment Repair & Maintenance work sheet: This work sheet is used to compile the cost of equipment repair and maintenance. List the equipment which may need service during the year. Indicate whether a service or maintenance contract is desired and the suggested vendor and the estimated cost. Total the costs for each object code category and enter the amounts in the appropriate blank on the Object of Expenditure work sheet.

10. New Equipment Purchase work sheet: This work sheet is for requesting new equipment. Follow the format and directions in Item 8 above.

As you can see, the "Fiscal Year 78-79 Budget Requests" work sheet is the working document for the budget. The other work sheets are supplementary "back-up" information. Please take care in entering information on the "Fiscal Year 78-79 Budget Requests" work sheet. Be sure to enter all information in the correct columns and on the proper object code line.

Do not be concerned about Object Code 300 (Employee Fringe Benefits). These expenditures will be computed and entered on the work sheet at the District Office.

After the budget request work sheets have been completed by the budget managers and reviewed by the campus administration, the original copy of each work sheet is returned to the District Office for compilation.

A computer print-out of the Preliminary Maintenance Budget, reflecting the budget requests, will be returned to the campus for review. Please don't hesitate to contact the District Business Office if any errors are noted. The sooner they are corrected, the better for all concerned.

As changes are made in the budget requests, updated computer print-outs will be provided to the campus. This will keep all budget managers informed as to the progress and status of the budget during the various developmental stages.

12/1977

STATE CENTER COMMUNITY COLLEGE DISTRICT

Organization Code with Activity Center Designation

	Org. Act.Cent.
FRESNO CITY COLLEGE	2xxxxx
College President Services	21xxxx
College President	211000-6600
Research	212000-6000
Research	212100-6000
Curriculum Development	212200-6000
Spec. Project-Ellish	212216-6000
Spec. Project-Lindsey	212217-6000
Spec. Project-Dose	212218-6000
Spec. Project-Blackburn	212219-6000
Spec. Project-Draper	212220-6000
Spec. Project-Beasley	212221-6000
Spec. Project-Moats	212222-6000
Spec. Project-Ogden	212223-6000
Spec. Project-Wilson	212224-6000
Spec. Project-Fisher	212225-6000
Spec. Project-Sall	212226-6000
Spec. Project-Woodruff	212227-6000
Spec. Project-Azamber	212228-6000
Spec. Project-Emerzian	212229-6000
Spec. Project-Blood	212230-6000
Community Services	213000-6800
Public Information	213100-6800
Recreation	213200-6800
Civic Center	213300-6800
Co-Curricular Activities	214000-6400
Staff Services	215000-6700
Faculty Senate	215100-6700
Sabbatical Leaves	215200-6700
Substitute & Other	215300-6700
In-Service Training	215400-6700
Minor Construction & Remodeling	217000-9990
Campus Development	219000-7100
Facilities Lease	219099-8900
Instructional Services	22xxxx
Dean of Instruction	221000-6000
Individual Study	221100-4900
Work Exper. Admin.	221200-6000
General Work Exper.	221300-4998
Resource Center	221400-6100
Library	221401-6100
Media Center	221402-6100
Tutorial Center	221403-6100
Spec. Project-Moats	221909-6000
Assoc. Dean-Eve. & Summer Session	222000-6000
Honor Farm School	222001-7000
Director of Occupational Ed.	223000-6000
Research & Design Project	223001-6000
Associate Dean of Business	224000-6000
Dept.Head-Acctg. & D.P..	224100-6000
Accounting	224101-0502
Data Processing	224102-0701
Dept.Head-Business Admin.	224200-6000
Business Administration	224201-0506
Dept.Head-General Office	224300-6000
General Office	224301-0538
Secretarial Science	224302-0514
Business Administration	224303-0506
Dept.Head-Mktg. & Phys. Distribu.	224400-6000
Agribusiness	224401-0112
Insurance	224402-0512
Marketing	224403-0509
Real Estate	224404-0511
Business Administration	224405-0506
Transportation	224406-0510
Dept.Head-Secretarial Science	224500-6000
Secretarial Science	224501-0514
Business Administration	224502-0506

	Org. Act.Cent
Associate Dean of Humanities	225000-6000
Dept.Head-Art	225100-6000
Art	225101-1002
Dept.Head-Black Studies	225200-6000
Black Studies	225201-0305
Dept.Head-La Raza Studies	225300-6000
La Raza Studies	225301-0308
Native American Studies	225302-0313
Dept.Head-Letters	225400-6000
Literature	225401-1501
Speech	225402-1506
Journalism	225403-0602
Philosophy	225404-1509
Dept.Head-Language Arts Skills	225500-6000
Remedial	225501-1501
Composition	225502-1501
Dept.Head-Foreign Language	225600-6000
Foreign Language	225601-1101
Dept.Head-Music	225700-6000
Music	225701-1005
Dept.Head-Theatre Arts	225800-6000
Theatre Arts	225801-1007
Associate Dean of Math, Science & Eng.	226000-6000
Dept.Head-Life Science	226100-6000
Biology	226101-0401
Botany	226102-0402
Zoology	226103-0407
Environmental Studies	226104-0120
Dept.Head-Chemistry	226200-6000
Chemistry	226201-1905
Dept.Head-Earth & Physical Sciences	226300-6000
Geography	226301-2206
Geology	226302-1914
Physics	226303-1902
Physical Sciences	226304-1901
Astronomy	226305-1911
Engineering	226306-0901
Dept.Head-Mathematics	226400-6000
Mathematics	226401-1701
Associate Dean of Social Sciences	227000-6000
Dept.Head-Anthro,Economics,Geography	227100-6000
Anthropology	227101-2202
Economics	227102-2204
Geography	227103-2206
Archeology	227104-2203
Dept.Head-History & Political Science	227200-6000
History	227201-2205
Political Science	227202-2207
Dept.Head-Home Economics & Education	227300-6000
Home Economics	227301-1301
Education	227302-0801
Education Aide	227303-0850
Sewing and Textiles	227304-1303
Child Development	227305-1305
VEA-F Poverty Program	227306-1301
Dept.Head-Psychology	227400-6000
Psychology	227401-2001
Dept.Head-Sociology	227500-6000
Sociology	227501-2208
Social Service	227502-2104
Associate Dean of Trade & Industry	228000-6000
Cosmetology	228100-3007
Apprenticeship	228200-5300
Dept.Head-Administration of Justice	228300-6000
Administration of Justice	228301-2105
Police Academy	228302-2105

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STATE CENTER COMMUNITY COLLEGE DISTRICT

Organization Code with Activity Center Designation

FRESNO CITY COLLEGE - (continued)	Org. Act.Cent.
Associate Dean of Trade & Ind.(cont'd.)	
Dept.Head-Building Construction	228400-6000
Building Technology	228401-0956
Mill Cabinet	228402-0965
Carpentry	228403-0962
Air Conditioning	228404-0944
Industrial Education	228405-0913
Plumbing & Pipe Fitting	228406-0967
Dept.Head-Electrical	228500-6000
Electricity	228501-0932
Electronics	228502-0934
Radio & Television	228503-0603
Dept.Head-Engineering Technology	228600-6000
Engineering Technology	228601-0901
Industrial Education	228603-0913
Water Utilities	228604-0958
Public Works	228605-2138
Fire Science	228606-2134
Library Science	228607-1601
Dietetic Service	228608-3002
Dept.Head-Graphics	228700-6000
Drafting	228701-0953
Architecture	228702-0202
Reprographics	228703-0630
Photography	228704-1011
Industrial Education	228705-0913
Dept.Head-Metal	228800-6000
Welding	228801-0966
Machine Shop	228802-0964
Industrial Education	228803-0913
Dept.Head-Transportation	228900-6000
Aeronautics	228901-0950
Flight Science	228902-0951
Automotive Mechanics	228903-0947
Body & Fender	228904-0946
Industrial Education	228905-0913
Associate Dean of Health Arts & Sci.	229000-6000
Dept.Head-Nursing Education	229100-6000
Registered Nursing	229101-1203
Vocational Nursing	229102-1238
Radiologic Technology	229103-1225
Respiratory Therapy	229104-1245
Community Health Worker	229105-1214
Nursing Assistance	229106-1236
Dept.Head-Dental Hygiene & Recrea.	229200-6000
Dental Hygiene	229201-1213
Health Education	229202-0837
Recreation	229203-2103
Recreation Therapy	229204-2104
Dept.Head-Phys. Education Activities	229300-6000
Physical Education Activities	229301-0835
Dept.Head-P.E. Preprofess. & Sports	229400-6000
P.E.Preprofess. & Compet. Sports	229401-0860
Student Services	23xxxx
Dean of Students	231000-6400
Categorical Prog.-Suspense Acct.	231100-7000
Associate Dean-Admissions & Records	232000-6200
Associate Dean-Counseling & Guidance	233000-6300
Guidance Studies	233100-0830
Director-Financial Aid-Placement	234000-6400
Director-Fin. Aid-Placement	234100-6400
College Work Study Program	234200-7000
Director-Fin. Aid-Programs	234300-7000
Associate Deans-Men & Women	235000-6400
Health Services	235100-6400
Veterans' Service Officer	236000-7000
Director of Athletics	237000-6900
Director-Enabler Services	238000-7000
Director EOPS	239000-7000
Program Development & Maintenance	239100-7000
Student Services	239200-7000
Tutorial	239201-7000
Counseling	239202-7000
Instruction	239203-7000
Recruitment	239204-7000
Curriculum Development	239205-7000
Direct Payment to Students	239300-7000
Special Services	24xxxx
Campus Business Manager	241000-6500
Accounting	241001-6700
Communications	241002-6700
Custodial	241003-6500
Grounds	241004-6500
Maintenance	241005-6500
Police Service & Parking	241006-6700
Production	241007-6700
Purchasing & Receiving	241008-6700
Transportation	241009-6700
Utilities	241010-6500
General Supplies	241011-6700
Book Store	241012-6400
VOCATIONAL TRAINING CENTER	4xxxxx
Administrative Services	41xxxx
Director	411000-6000
Facilities Lease	419099-8900
Vocational Training Center	419099-9945
Site Acquisition VTC	419099-9968
New Facilities-VTC	419099-9973
Instructional Services	42xxxx
Body, Fender & Painting	421000-0946
Engine Overhaul	422000-0947
Brake & Front End Alignment	423000-0968
Tuneup & Emission Control	424000-0969
Welding	425000-0966
G.E.D. Program	426000-4930
Automotive,Furniture Uphol., & Drapes	427000-0970
Small Engines & Motorcycle Repairs	428000-0949
Ornamental Ironworking	429000-0971
MADERA CENTER	6xxxxx
Administrative Services	61xxxx
Director	611000-6000
Instructional Services	62xxxx
Instruction	621000-6000

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December 1977

STATE CENTER COMMUNITY COLLEGE DISTRICT

Organizational Code with Activity Center Designation

	Org. Act.Cent.
REEDLEY COLLEGE	3xxxxx
College President Services	31xxxx
College President	311000-6600
Co-Curricular Activities	311100-6400
Business Services	312000-6700
Business Services Assistant	312100-6700
Communications	312200-6700
Stock-Mail Room	312300-6700
Production	312400-6700
Plant Services	313000-6500
Director of Maintenance & Operations	313100-6500
Custodial	313200-6500
Grounds	313300-6500
Maintenance	313400-6500
Utilities	313500-6500
Community Services	314000-6800
Public Information	314100-6800
Recruitment	314200-6800
Recreation	314300-6800
Civic Center	314400-6800
Research	315000-6000
Staff Services	316000-6700
Sabbatical Leaves	316100-6700
Substitute Pay	316200-6700
General	316300-6700
Minor Construction & Remodeling	317000-9990
Campus Development	319000-7100
Facilities Lease	319099-8900
Instructional Services	32xxxx
Dean of Instruction	321000-6000
Individual Study	321100-4900
Director of Learning Resources	321200-6100
Library	321201-6100
Media Center	321202-6100
Assoc. Dean-Vocational Education	323000-6000
Cooperative Education	323100-5300
Assoc. Dean-Humanities & Soc.Sci.	324000-6000
Tokyo English School	324001-6000
Dept.Head-Comm. & Lang. Arts	324100-6000
English	324101-1501
Foreign Language	324102-1101
Journalism	324103-0602
Reading	324104-1530
Library Science	324105-1601
Dept. Head-Creative & Perf. Arts	324200-6000
Art	324201-1002
Music	324202-1005
Speech	324204-1506
Photography	324205-1011
Dept.Head-Social Science	324300-6000
Anthropology	324301-2202
Cultural Studies	324302-0305
Education	324304-0801
History	324306-2205
Administration of Justice	324307-2105
Political Science	324308-2207
Psychology	324309-2001
Sociology	324310-2208
Philosophy	324312-1509
Assoc.Dean-Business & Family Studies	325000-6000
Dept.Head-Business	325100-6000
Business Administration	325101-0506
Economics	325102-2204
Business Office Skills	325103-0538
Marketing	325106-0509
Secretarial Science	325107-0514
Home Economics	325201-1301
Human Relations	325202-2210
Education	325203-0801
Campus Lab School	325204-0801
Director of Agriculture	326000-6000
Dept.Head-Ag. & Nat. Resources	326100-6000
General Agriculture	326101-0101
Natural Resources	326102-0115
Ornamental Horticulture	326103-0409
Agricultural Mechanics	326104-0110
Plant Science	326105-0102
Animal Science	326106-0104
Manpower Training Program	326107-7000
School Farm Account	326199-6900
Assoc. Dean-Engineering Technology	327000-6000
Dept.Head-Engineering Technology	327100-6000
Aeronautics	327101-0950
Automotive Technology	327102-0947
Electronics	327103-0934
Engineering	327104-0901
Industrial Technology	327105-0913
Work Experience	327106-0998
Assoc.Dean-Math, Science, Health & P.E.	328000-6000
Dept.Head-Math & Physical Science	328100-6000
Chemistry	328101-1905
Geography	328102-2206
Geology	328103-1914
Mathematics	328104-1701
Physical Science	328105-1901
Physics	328106-1902
Dept.Head-Health & Life Sciences	328200-6000
Biological Science	328201-0401
Dental Assisting	328202-1230
Health Sciences (Education)	328203-0837
Nursing	328204-1203
Dietary, Health & Sanitation	328205-3002
Dept.Head-Physical Ed. & Recreation	328300-6000
Physical Activity & Recreation	328301-0835
Student Services	33xxxx
Dean of Students	331000-6400
Assoc. Dean-Admissions & Records	331100-6200
Assoc. Dean-Counseling & Guidance	331200-6300
Counselors	331201-6300
Director EOPS	331202-7000
Veterans Service Officer	331203-7000
Enabler Program	331204-7000
Guidance Studies	331205-0830
Director EOPS (OASIS)	331210-7000
Program Development-Maintenance	331220-7000
Student Services	331230-7000
Tutorial	331231-7000
Counseling	331232-7000
Instruction	331233-7000
Other	331234-7000
Direct Payment to Students	331240-7000
Assoc. Dean-Student Activities	331300-6400
Residence Hall Supervisor	331301-6400
Security & Parking	331400-6700
Health Services	331500-6400
Director of Athletics	331600-6900
Inter-Collegiate Athletics	331601-0860
Director of Financial Aids-Placement	331700-6400
Director of Financial Aid	331701-6400
College Work Study Program	331702-7000
Director of Financial Aid-Programs	331703-7000
Manager, Student Store	331800-6400
Transportation Pool	331900-6700
Categorical Programs-Suspense Account	332000-7000

STATE CENTER COMMUNITY COLLEGE DISTRICT

Organization Code with Activity Center Designation

	Org. Act.Cent.
DISTRICT	1xxxxx
Board of Trustee Services	11xxxx
Board of Trustees	111000-6600
Employer-Employee Relations	112000-6600
Public Information	113000-6800
Debt Service	114000-7200
Chancellor's Services	12xxxx
Chancellor	121000-6600
In-Service Staff Development	121100-6600
Affirmative Action	122000-6600
District Facilities	129000-7100
Personnel Commission	13xxxx
Classified Personnel Commission	131000-6600
Classified Personnel Director	132000-6700
Instructional Administration Services	14xxxx
Vice Chancellor-Education	141000-6600
Facilities Planning	142000-6600
Certificated Personnel	143000-6700
Business & Plant Services	15xxxx
Vice Chancellor-Business	151000-6600
EPDA Program	151001-7000
Accounting & Payroll	151100-6700
Purchasing	151200-6700
Property Management	151300-7000
Communications	151400-6700
District Office Services	151500-6500
Data Processing	151600-6700
Construction Inspection	151700-7100
Food Services	151800-6900
Administration	151801-6900
Fresno City College	151802-6900
Reedley College	151803-6900
Ratcliffe Stadium	151804-6900

December 1977

STATE CENTER COMMUNITY COLLEGE DISTRICT

CODE STRUCTURE

OBJECT CODES

100 CERTIFICATED SALARIES

110 Teaching, Regular Schedule
- 111 Reg. Contract - Day, Graded Class
- 112 Reg. Contract - Eve., Graded Class
- 114 Reg. Contract - Class/Adults
- 115 Reg. Contract - Sabbatical Leaves
- 116 Temp. Contract - Day, Graded Class
- 117 Temp. Contract - Eve., Graded Class
- 119 Temp. Contract - Class/Adults

120 Non-Teaching, Regular Schedule
- 121 Reg. Contract - Management
- 122 Reg. Contract - Non-Management
- 123 Reg. Contract - Sabbatical Lv. Mgt.
- 124 Reg. Contract - Sabbatical Lv. Non-Mgt.
- 126 Temp. Contract - Management
- 127 Temp. Contract - Non-Management

130 Teaching, Other Schedule
- 131 Hourly - Day, Graded Class
- 132 Hourly - Eve., Graded Class
- 134 Hourly - Class/Adults
- 135 Hourly - Summer Sess. Graded
- 136 Hourly - Summer, Class/Adults
- 137 Hourly - Substitutes

140 Non-Teaching, Other Schedule
- 141 Management
- 142 Non-Management

200 CLASSIFIED (Non-Cert.) SALARIES

210 Classified Service, Non-Instructional
- 211 General
- 212 Confidential
- 213 Management
- 215 Overtime

220 Class. Serv., Instructional Aide
- 221 General
- 225 Overtime

230 Class., Other, Non-Instructional
- 231 Hourly
- 235 Overtime

240 Class., Other, Instructional Aide
- 241 Hourly

250 Class., Other, Student
- 251 Hourly

260 Class., Other, Student Instruc. Aide
- 261 Hourly

300 EMPLOYEE BENEFITS

310 State Tchrs. Retirement System
- 311 Certificated Teachers
- 312 Instructional Aides
- 313 Certificated Management
- 314 Certificated Non-Management
- 315 Classified General Employees
- 316 Classified Management & Confidential
- 317 Teachers - Sick Leave Ret. Credits
- 318 Other - Sick Leave Ret. Credits

320 Public Employees Retire. System
- 321 Certificated Teachers
- 322 Instructional Aides
- 323 Certificated Management
- 324 Certificated Non-Management
- 325 Classified General Employees
- 326 Classified Management & Confidential
- 327 Administrative Costs

330 OASDHI
- 331 Certificated Teachers
- 332 Instructional Aides
- 333 Certificated Management
- 334 Certificated Non-Management
- 335 Classified General Employees
- 336 Classified Management & Confidential
- 337 Administrative Costs

340 Health & Welfare Benefits
- 341 Certificated Teachers
- 342 Instructional Aides
- 343 Certificated Management
- 344 Certificated Non-Management
- 345 Classified General Employees
- 346 Classified Management & Confidential
- 348 Retired Employees

350 State Unemployment Insurance
- 351 Certificated Teachers
- 352 Instructional Aides
- 353 Certificated Management
- 354 Certificated Non-Management
- 355 Classified General Employees
- 356 Classified Management & Confidential

360 Workmen's Compensation Insurance
- 361 Certificated Teachers
- 362 Instructional Aides
- 363 Certificated Management
- 364 Certificated Non-Management
- 365 Classified General Employees
- 366 Classified Management & Confidential
- 367 Adjustments

STATE CENTER COMMUNITY COLLEGE DISTRICT

CODE STRUCTURE

OBJECT CODES

400 BOOKS, SUPPLIES & EQUIPMENT REPLACEMENT

- 410 Textbooks
- 420 Other Books
- 430 Instructional Supplies
- 440 Non-Instructional Supplies
  - 441 Office Supplies
  - 443 Custodial, maintenance & operation
  - 444 Gardening, building & grounds
  - 445 Swimming Pool supplies
  - 446 Vehicles Supplies, gas, tires, etc.
  - 449 Other
- 450 Food Service Supplies
  - 451 Food
  - 452 Soap
  - 453 Paper
  - 454 Kitchen Utensils
  - 459 Other
- 480 Replacement of Equipment
  - 481 Instructional Equipment
  - 482 Non-Instructional Equipment
  - 483 Vehicles

500 OTHER OPERATING EXPENSE

- 510 Utilities
  - 511 Electricity & Natural Gas
  - 512 Water, Sewer & Waste
  - 513 Fuel Oil
- 520 Communications & Media
  - 521 Telephone & Telegraph
  - 522 Postage
  - 523 Periodicals & Newspapers
  - 524 Film Rental
  - 525 Microfilm
  - 526 Records & Tapes
  - 527 Publications, Catalog, Etc.
  - 528 Advertising
- 530 Travel & Conference
  - 531 Conference
  - 532 Staff Mileage
  - 533 Consultant Travel
- 540 Dues & Memberships
  - 541 District Membership
  - 542 Institutional Membership
  - 543 Departmental Membership
- 550 Professional Services, Fees
  - 551 Board of Trustee Services
  - 552 Personnel Commission Services
  - 553 Consultant Services
  - 554 Legal Services
  - 555 Medical Services
  - 556 Audit Services
  - 557 Appraisal Services
  - 558 Contract Instructional Services
  - 559 Performance Fees & Honorariums
- 560 Other Services
  - 561 Accreditation Services
  - 562 Armored Car Services
  - 563 Election Services
  - 564 Testing Services
  - 565 Laundry & Dry Cleaning Services
  - 566 Vehicle Repair & Maintenance Services
  - 567 Equipment Repair & Maintenance Services
  - 568 Pest Control Services
  - 569 Miscellaneous Services

500 OTHER OPERATING EXPENSE - (continued)

- 570 Insurance
  - 571 Fire & Extended Coverage
  - 572 Boiler & Machinery
  - 573 Liability & Property Damage
  - 574 Aeronautics
  - 575 Athletic
  - 576 Fidelity
- 580 Miscellaneous
  - 581 Sales Tax
  - 582 Equipment Rental
  - 583 Building Rental
  - 585 Alarm System
  - 586 Other

600 CAPITAL OUTLAY

- 610 Sites
  - 611 Site Acquisition, Land
  - 612 Appraisal Services
  - 613 Consultant Services
  - 614 Engineering Services, Tests, Etc.
  - 615 Legal Services, Incl. Advertising
- 620 Site Improvement
  - 621 Demolition
  - 622 Construction
  - 623 Architect Services
  - 624 Engineering Services, Tests, Etc.
  - 625 Legal Services, Incl Advertising
- 630 Buildings
  - 631 Construction
  - 632 Consultant Services
  - 633 Architect Services
  - 634 Engineering Services, Tests, Etc.
  - 635 Legal Services, Incl. Advertising
  - 635 Plan Check Fees
- 640 Books
  - 641 Library Books, Major Expansion
  - 642 Textbooks
- 650 Equipment Purchase
  - 651 Passenger Vehicles
  - 652 Maintenance Vehicles
  - 653 Aircraft
  - 654 Instructional Equipment
  - 655 Non-Instructional Equipment
- 660 Lease Purchase-Building & Equipment
  - 661 Instructional Equipment
  - 662 Non-Instructional Equipment
  - 663 Buildings

700 OTHER OUTGO

- 710 Debt Service
- 720 Tuition Transfers
- 730 Interfund Transfers
- 740 Other Transfers
- 750 Student Financial Aid
- 790 Appropriation for Contingencies

STATE CENTER COMMUNITY COLLEGE DISTRICT

CHART OF ACCOUNTS

Special Funding

All programs not involved with special funding sources or special accounting requirements will carry an XX designation in the Special Funding Code Position.

SPECIAL PROJECTS

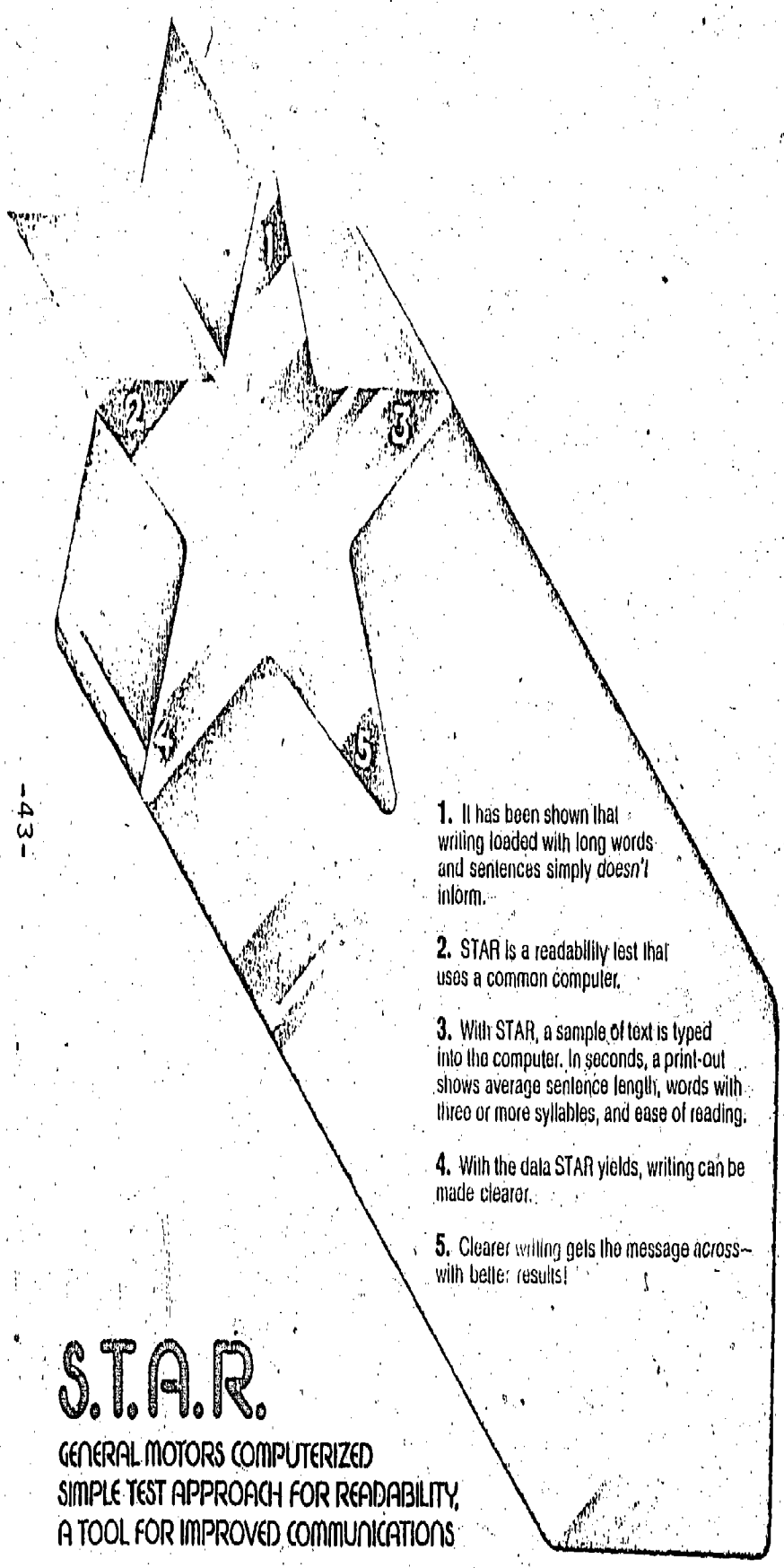
Spec. Fund. Code	
AL	Nursing Program - AHEC
AN	Nursing Capitation Program
CE	Economic Opportunities Program & Services (EOPS)
CF	Economic Opportunities Program & Serv. (Summer)
CJ	California Council Criminal Justice
CK	Bilingual Teacher Corps
CM	Manpower Develop. & Training Act (MDTA)
CT	Reedley Blind Students
EB	Basic Educ. Opportunity Grant (BEOG)
EE	Suppl. Educ. Opportunity Grant (SEOG)
EP	EPDA Program
FC	Veterans' Cost of Instruction
FG	Title VI
FL	Library Grant
FP	CETA
FS	Nursing Scholarship
HE	Real Estate Grant
HF	Honor Farm School Grant
HJ	Ag Consortium
RH	Research and Design Project
TV	TV Consortium
VA	VEA Program, General - Agriculture
VB	VEA Program, General - Distribution
VC	VEA Program, General - Health
VE	VEA Program, General - Home Economics
VF	VEA Program, General - Office
VG	VEA Program, General - Technical
VH	VEA Program, General - Trade & Industry
VJ	VEA Program, General - Other
VK	Research & Design Proj. - Disadv. Students
VL	VEA Enabler Program
VM	VEA Consumer & Homemaking Project
VO	VEA Augmented Funds
VP	VEA Phys. Handicapped Spec. Proj.
VR	VEA Work Study Program
VS	VEA Disadvantaged Expenditures
VT	VEA-EPDA
VW	VEA Cooperative Program
VX	VEA Diagnosis Learning Disabilities
VY	VEA Youth Group Advisors
WE	Work Experience
WN	WIN Line of Credit
YA	Work Study - Fresno City College Campus
ZA	Work Study - Reedley College Campus

Fresno City College
Report GW3050

STUDENT AUDIT SYSTEM
Annual Report-Tutorial Center Utilization

Student Name	Student No.	Voc Ed Disadv	Enabler	EOPS	Other	
Joe Student	123-45-6789				2.5	
Mary Nurse	234-56-7890	20.0				
Frank Bewildered	345-67-8901			6.5		
Grace Trying	456-78-9012		53.5			
John Smith	567-89-0123	16.5				
Leo Jones	678-90-1234	3.0				
Jason Long	789-01-2345	65.0				
Hubert Ford	890-12-3456			3.5		
Ronald Chevrolet	901-23-4567	2.5				
Gladys Strong	012-34-5678		26.0			
Keri Busy	987-65-4321				1.0	
Total	Students	5	2	2	2	11
	Hours	107.0	79.5	10.0	3.5	200.0

The Text of This Booklet was Tested by STAR. Grade Level Equivalent was Just Below 9.



1. It has been shown that writing loaded with long words and sentences simply *doesn't* inform.

2. STAR is a readability test that uses a common computer.

3. With STAR, a sample of text is typed into the computer. In seconds, a print-out shows average sentence length, words with three or more syllables, and ease of reading.

4. With the data STAR yields, writing can be made clearer.

5. Clearer writing gets the message *across*—with better results!

S.T.A.R.

GENERAL MOTORS COMPUTERIZED SIMPLE TEST APPROACH FOR READABILITY, A TOOL FOR IMPROVED COMMUNICATIONS

CONTENTS

GM's Computerized Readability Evaluation Program Can Help You Improve Your Communications 2

Using the STAR Program is Easy and Fast With Only Two Steps Involved 4

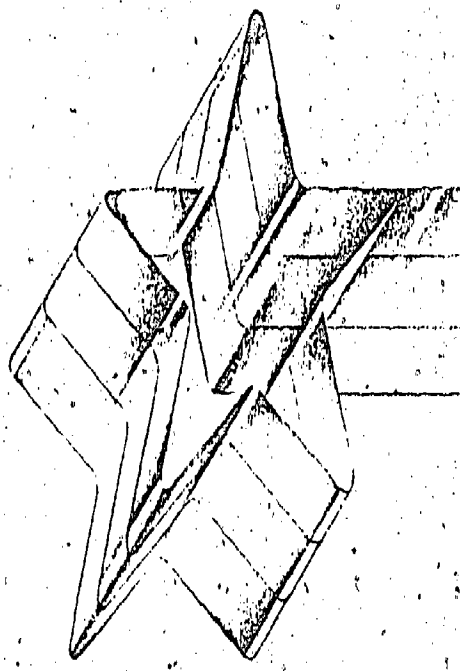
Now You're Prepared to Improve Your Writing 6

APPENDIX A, A GM Service Research Example of STAR Readability Improvement 8

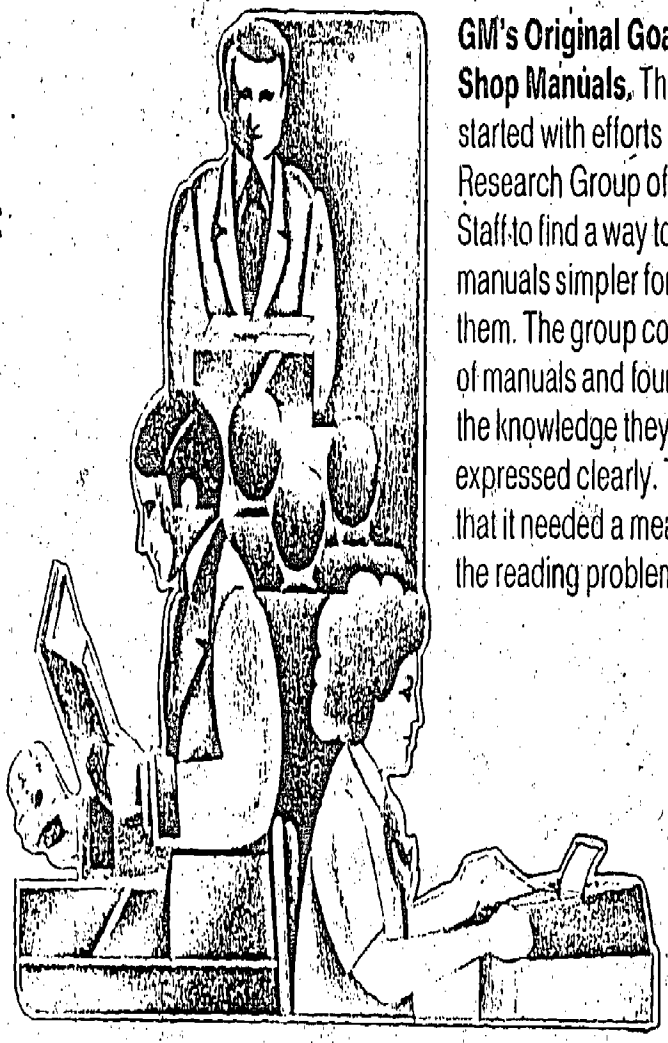
APPENDIX B, Programming Instructions for STAR Simple Test Approach for Readability 8

APPENDIX C, STAR Computer Instructions for Text Readability Evaluation 11

APPENDIX D, Examples of Typical "Hi-Cal" Words and More "Readable" Equivalents 12



GM'S COMPUTERIZED READABILITY EVALUATION PROGRAM CAN HELP YOU IMPROVE YOUR COMMUNICATIONS

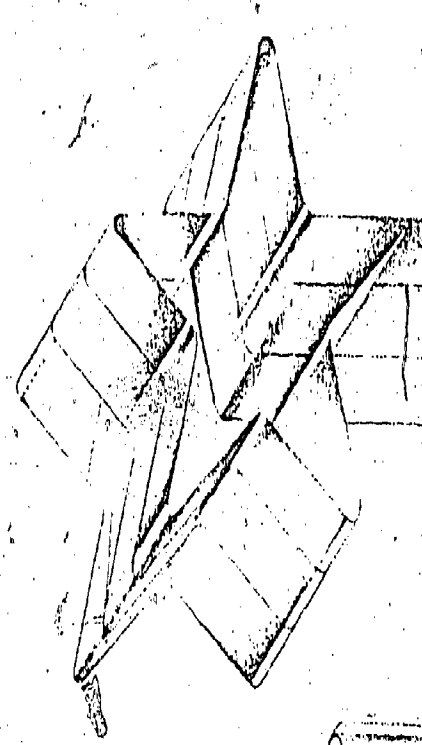


GM's Original Goal Was Improved Shop Manuals. The STAR program started with efforts by the Service Research Group of GM's Marketing Staff to find a way to make shop manuals simpler for the men who use them. The group collected samples of manuals and found that much of the knowledge they held was not expressed clearly. The group saw that it needed a means for defining the reading problems it found.

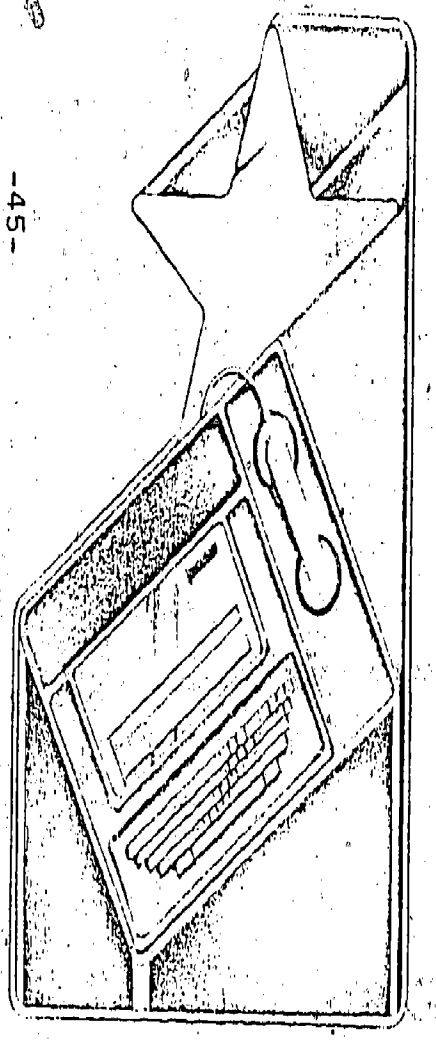
Readability Theory Provided A Tool. Research showed that several methods for testing readability had been tried in recent years. Of these, it appeared the one used by Rudolf Flesch was best for the group's aims. Flesch based his test of reading ease on counting the average syllables per word and words per sentence. He found that the higher the syllable count and the longer the sentence, the harder it is to grasp.

Computers Added Efficiency. The Flesch formula gave the research group a yardstick for measuring the reading ease of service manuals. First tests on sample text confirmed that shop manuals are hard to understand.

Then the group sought an easier



USING THE STAR PROGRAM IS EASY AND FAST WITH ONLY TWO STEPS INVOLVED



1. Programming. Appendix "B" at the back of this book contains instructions in BASIC computer language. These may be typed-in to a Honeywell 6000 computer, or may be easily adapted to any compatible computer system. In general, the computer is programmed to do these six things:

A. Count end-of-sentence marks (periods, exclamation points, question marks, semi-colons, colons) to find the number of sentences in the sample.

B. Count spaces after each word to find the number of words.

C. Count vowels (A, E, I, O, U, Y) to get the number of syllables.

D. Ignore final -E, -ES, -ED, which are not counted as syllables.

E. Read any word of three letters or less as a single syllable (ARE, THE, A, OFF).

F. See all double-vowels as one syllable (OO, EI, AY).

49

way to test than to count by hand.

That is how the Flesch Reading Ease formula and the computer came together at GM. The result is a program designed for a common computer and easily used by almost anyone. It provides a fast, useful measurement of reading ease.

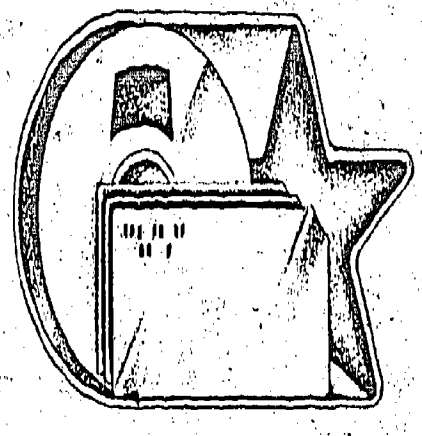
By taking an idea to a practical conclusion, General Motors has evolved a tool which can help anyone who wants clear communication. We are happy to offer this program to all interested parties.

The complete STAR program, and guidance in its use, are printed in the Appendix of this book. The program is shown in BASIC computer language and can be used with a compatible computer system.

The STAR Program Is Another Milestone in Readability. The study is based on a simple premise: comprehension does not depend solely on the skills of the reader. The way words are set down can make reading easy or hard.

Since 1923, methods have evolved for reducing reading ease to numerical standards called "Indexes." These "Indexes" can all be related to educational grade-level equivalents--one of the standards in the STAR system. The Flesch method for testing reading ease was adopted for use in the GM program because it provides an accurate scale of readability and is easily adapted to widely-used computer systems. The GM STAR program offers these two advantages:

- It cuts manual counting of words, sentences and syllables.
- It can be used by anyone with access to a common computer system. Knowledge of the theory is not needed, and the only skill is the ability to type plain text.



2. Running Test Copy. Once your computer system is programmed, you can begin your study. Appendix "C" has BASIC Guidance for typing-in test copy on the computer. Follow the Guide, and include these major points:

A. Besides the sample text, only underlined directional words should be typed-in.

B. A valid test can be had from a sample of about 100 words.

C. An ID File Name is to be placed as directed.

D. A complete print-out of the sample text and a listing of all words with three syllables or more ("Hi-Cal" words) can be ordered or rejected.

E. All questions asked by the computer must be answered.

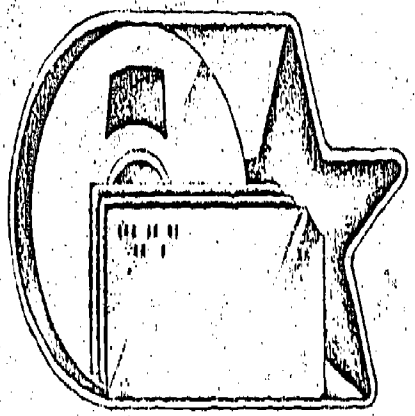
The STAR System Computer Print-out Furnishes This Information . . .

If requested . . .

THE SAMPLE TEXT IS PRINTED OUT IN FULL

If requested . . .

WORDS OF THREE SYLLABLES OR MORE ARE PRINTED



The following information is always provided:

NUMBER OF SENTENCES–

NUMBER OF WORDS–

NUMBER OF SYLLABLES–

AVERAGE SENTENCE LENGTH–

AVERAGE NUMBER OF SYLLABLES PER WORD–

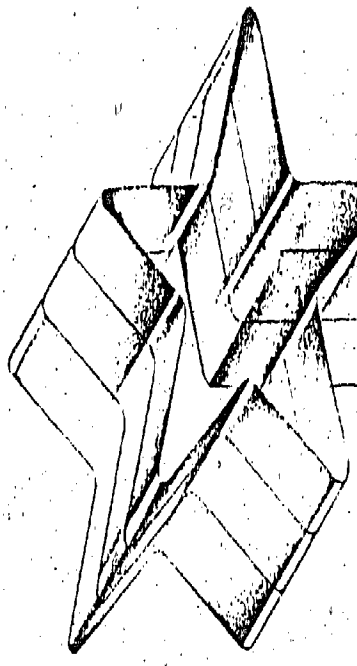
*FLESCH INDEX–

**DALE INDEX (Derived from Flesch Index)–

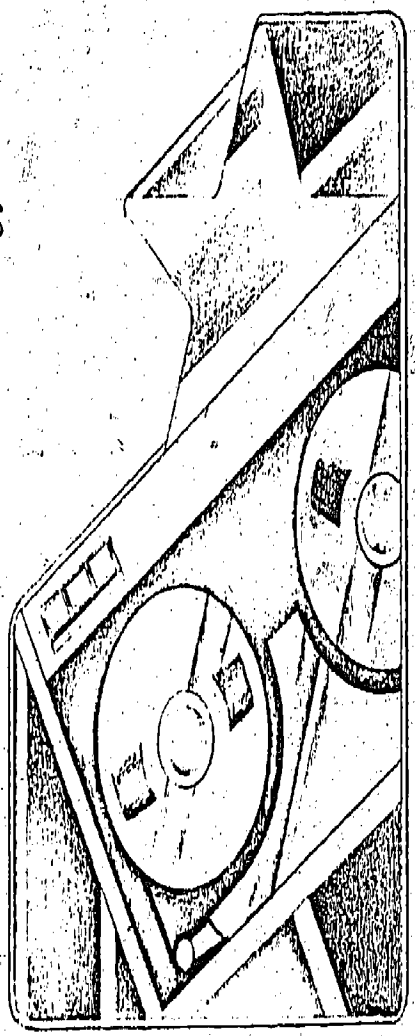
GRADE LEVEL EQUIVALENT (Derived from Flesch Index)–

*The Flesch Index is based on a scale of 0 to 100. The higher the index, the *more readable* the writing.

**The Dale-Chall measurement of readability, which appeared in 1948, is widely used in the educational system for assessing graded textbooks. It involves primarily a comparison of a text sample with a graded list of vocabulary words. The Dale index is based on a scale of 0 to 10. The higher the index, the more difficult the reading.



NOW YOU'RE PREPARED TO IMPROVE YOUR WRITING



STAR Helps You Reduce The Size of Words and Sentences. In working out his theory of reading ease, Rudolph Flesch became convinced that two factors in written messages tend to hinder comprehension. They are long sentences and long words. Flesch saw that modern English writing has come a long way in reducing sentence length, but that it has lessened this gain by using longer words which tend to cram too much meaning in too small a unit. This "density" of language is now the main snag in efforts to write clearly.

The STAR program helps clarify "dense" language. By listing words of three syllables or more, the print-out makes it easy to remove "Hi-Cal" words from any writing. The print-out also indicates when sentences need trimming. (Appendix "D" contains a list of typical "Hi-Cal" words. Paired with each are more "readable" equivalents.)

Easier Reading Means Better Understanding. Because of our interest in improved communications, General Motors Public Relations is making available the STAR readability evaluation program to groups inside and outside GM. For General Motors groups, the program can be used with the computer located at the GM Parts Division in Flint, Michigan. Outside General Motors, the program can be used by anyone with access to a compatible time-sharing computer system.

APPENDIX A
A GM SERVICE RESEARCH EXAMPLE OF STAR READABILITY IMPROVEMENT

The Original Passage Read Like This . . .

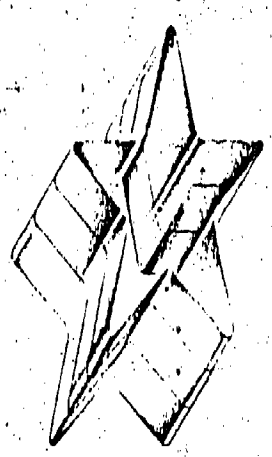
THE COMFORTRON SYSTEM AUTOMATICALLY CONTROLS THE HEATING AND AIR CONDITIONING IN THE AUTOMOBILE SO THAT A CONSTANT INTERIOR TEMPERATURE IS MAINTAINED REGARDLESS OF OUTSIDE TEMPERATURE CONDITIONS. IN HOT WEATHER IT WILL COOL THE CAR RAPIDLY TO THE PRE-SET COMFORT LEVEL AND THEN REGULATE COOLING TO WHATEVER DEGREE IS REQUIRED TO MAINTAIN CONSTANT COMFORT. IN MILD WEATHER THE INTERIOR OF THE CAR REMAINS COMFORTABLE WITHOUT HAVING TO RESET THE CONTROLS. IN COLD WEATHER THE SYSTEM WILL HEAT THE CAR QUICKLY TO THE DESIRED TEMPERATURE THEN LEVEL-OUT TO MAINTAIN THE PRE-SET COMFORT LEVEL DESIRED BY THE PASSENGERS. THE FOLLOWING PARAGRAPHS CONTAIN A BRIEF DESCRIPTION OF THE COMPONENTS OF THE COMFORTRON SYSTEM.

3 COMFORTRON	3 WHATEVER	NUMBER OF SENTENCES = 5.
6 AUTOMATICALLY	3 INTERIOR	NUMBER OF WORDS = 109.
4 CONDITIONING	4 COMFORTABLE	NUMBER OF SYLLABLES = 196.
5 AUTOMOBILE	4 TEMPERATURE	AVERAGE SENTENCE LENGTH = 21.8
3 INTERIOR	3 LEVEL-OUT	AVE. SYLLABLES PER WORD = 1.8
4 TEMPERATURE	3 PASSENGERS	FLESCH INDEX = 32.6
3 REGARDLESS	3 FOLLOWING	DALE INDEX = 9.81
4 TEMPERATURE	3 PARAGRAPHS	GRADE LEVEL EQUIVALENT = 16.1
3 CONDITIONS	3 DESCRIPTION	
3 RAPIDLY	3 COMPONENTS	
3 REGULATE	3 COMFORTRON	

With the Information STAR Provided, The Passage Was Made More Readable . . .

THE COMFORTRON SYSTEM AUTOMATICALLY CONTROLS THE HEATING AND COOLING OF THE AIR INSIDE THE CAR. IT KEEPS THE INSIDE AIR AT A FIXED TEMPERATURE REGARDLESS OF THE OUTSIDE AIR TEMPERATURE. IN HOT WEATHER IT WILL COOL THE INSIDE AIR TO A PRE-SET LEVEL AND THEN KEEP THAT COOLING LEVEL. IN MILD WEATHER THE INSIDE AIR REMAINS COMFORTABLE WITHOUT HAVING TO RESET THE CONTROLS. IN COLD WEATHER THE SYSTEM WILL HEAT THE INSIDE AIR QUICKLY TO THE PRE-SET TEMPERATURE THEN LEVEL OUT. THE FOLLOWING SECTIONS DESCRIBE THE COMFROTRON SYSTEM COMPONENTS.

3 COMFORTRON	NUMBER OF SENTENCES = 6.
6 AUTOMATICALLY	NUMBER OF WORDS = 89.
4 TEMPERATURE	NUMBER OF SYLLABLES = 145.
3 REGARDLESS	AVERAGE SENTENCE LENGTH = 14.8
4 TEMPERATURE	AVG. SYLLABLES PER WORD = 1.6
4 COMFORTABLE	FLESCH INDEX = 53.9
4 TEMPERATURE	DALE INDEX = 8.67
3 FOLLOWING	GRADE LEVEL EQUIVALENT = 11.7
3 COMFORTRON	
3 COMPONENTS	

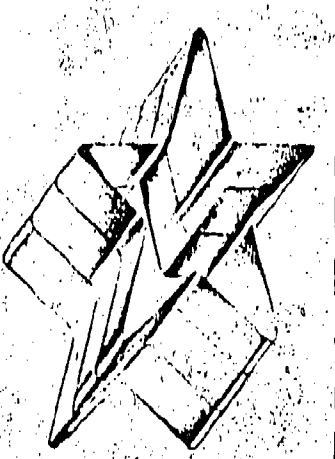


APPENDIX B PROGRAMMING INSTRUCTIONS FOR STAR SIMPLE TEST APPROACH FOR READABILITY*

```
10 FILES * ,WORKFILE
20 REM **** A1 IS TABLE OF CHARACTERS IN A SINGLE WORD ****
30 DIM A1 (50)
40 REM **** V1 IS THE VOWEL TABLE ****
50 DIM V1 (12)
60 REM **** A (UPPER AND LOWER CASE) ****
70 LET V1 (1) = 65
80 LET V1 (2) = 97
90 REM **** E ****
100 LET V1 (3) = 69
110 LET V1 (4) = 101
120 REM **** I ****
130 LET V1 (5) = 73
140 LET V1 (6) = 105
150 REM **** O ****
160 LET V1 (7) = 79
170 LET V1 (8) = 111
180 REM **** U ****
190 LET V1 (9) = 85
200 LET V1 (10) = 117
210 REM **** Y ****
220 LET V1 (11) = 89
230 LET V1 (12) = 121
240 REM **** P1 IS AN END-OF-SENTENCE CHARACTER ****
250 LET A$ = ". ? ! : ;"
260 CHANGE A$ TO P1
270 REM **** P IS NUMBER OF END-OF-SENTENCE CHARACTERS ****
280 LET P = P1 (0)
290 REM **** C1 IS COMMA ****
300 LET A$ = ","
310 CHANGE A$ TO C1
320 REM **** REQUEST INPUT FILE NAME ****
330 PRINT
340 PRINT "ENTER INPUT FILE NAME"
350 INPUT A$
360 PRINT "DO YOU WANT TEXT PRINTED? (YES OR NO)"
370 INPUT B$
380 PRINT "DO YOU WANT HI-CAL WORDS PRINTED? (YES OR NO)"
390 INPUT C$
400 FILE # 1, A$
410 REM **** COPY DATA FILE TO WORK FILE WITH TRAILING BLANKS ****
420 DELIMIT # 1, (CR)
430 SCRATCH # 2
440 GOSUB 1770
450 PRINT TAB (10), "CONTENTS OF FILE:", A$
460 PRINT
470 INPUT # 1, A$
480 IF B$ = "YES" THEN 520
490 IF B$ = "Y" THEN 520
500 GOTO 530
510 REM **** TEXT IS PRINTED ****
520 PRINT A$
530 PRINT # 2, A$, " "
540 IF MORE # 1 THEN 470
550 RESTORE # 1
560 PRINT
570 RESTORE # 2
580 DELIMIT # 2, ( )
590 REM **** S1 IS COUNT OF PERIODS ****
600 LET S1 = 0
```

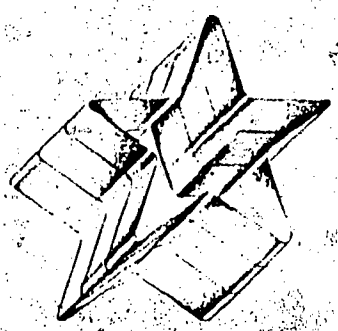
*These are BASIC instructions compatible with the Honeywell 6000 computer. Modifications may be necessary for compatibility with other time-sharing computer systems.

```
610 REM **** W1 IS COUNT OF WORDS ****
620 LET W1 = 0
630 REM **** S2 IS COUNT OF SYLLABLES ****
640 LET S2 = 0
650 INPUT # 2, A$
660 IF END # 2 THEN 1300
670 LET W1 = W1 + 1
680 REM **** V IS COUNT OF VOWELS IN THIS WORD ****
690 LET V = 0
700 CHANGE A$ TO A1
710 LET B = A1 (0)
720 REM **** CHECK FOR TRAILING COMMA ****
730 IF A1 (B) NE C1 (1) THEN 760
740 LET B = B - 1
750 GOTO 040
760 REM **** CHECK FOR END OF SENTENCE ****
770 FOR I = 1 TO P
780 IF A1 (B) NE P1 (I) THEN 820
790 LET S1 = S1 + 1
800 LET B = B - 1
810 GOTO 040
020 NEXT I
830 REM **** IF WORD HAS THREE LETTERS COUNT 1 SYLLABLE ****
840 IF B > 3 THEN 870
850 LET V = 1
860 GOTO 1210
870 REM **** CHECK FOR SUFFIXES ****
080 LET B1 = B - 1
890 LET Z$ = SST (A$, B1, 2)
900 IF Z$ NE "ED" THEN 930
910 LET B = B - 2
920 GOTO 970
930 IF Z$ = "ES" GO TO 910
940 IF Z$ = "LE" THEN 1030
950 LET B1 = B1 - 1
960 LET Z$ = SST (A$, B1, 3)
970 REM **** TEST FOR TRAILING "E" ****
980 IF A1 (B) NE V1 (3) THEN 1010
990 LET B = B - 1
1000 GOTO 1050
1010 IF A1 (B) NE V1 (4) THEN 1050
1020 LET B = B - 1
1030 REM **** COUNT VOWELS ****
1040 REM **** L IS THE POSITION OF THE LAST VOWEL ****
1050 LET L = 0
1060 FOR I = 1 TO B
1070 FOR J = 1 TO 12
1080 IF A1 (I) NE V1 (J) THEN 1160
1090 REM **** WAS THE PREVIOUS CHARACTER A VOWEL ****
1100 IF I = 1 THEN 1130
1110 LET L1 = I - L
1120 IF L1 = 1 THEN 1140
1130 LET V = V + 1
1140 LET L = I
1150 GOTO 1170
1160 NEXT J
1170 NEXT I
1180 REM **** MAKE SURE WORD HAS ONE SYLLABLE ****
1190 IF V > 0 THEN 1210
1200 LET V = 1
1210 LET S2 = S2 + V
1220 IF C$ = "YES" THEN 1250
1230 IF C$ = "Y" THEN 1250
1240 GOTO 1290
1250 IF V LT 3 GOTO 1290
1260 IF V GE 3 GOTO 1280
1270 REM **** PRINT HI-CAL WORDS & NUMBER OF SYLLABLES ****
1280 PRINT V, A$
1290 IF MORE # 2 THEN 650
1300 PRINT
```



APPENDIX B (CONT'D) PROGRAMMING INSTRUCTIONS FOR STAR SIMPLE TEST APPROACH FOR READABILITY

```
1310 PRINT USING 1320, S1
1320 :          NUMBER OF SENTENCES = ####.0
1330 PRINT USING 1340, W1
1340 :          NUMBER OF WORDS = ####.0
1350 PRINT USING 1360, S2
1360 :          NUMBER OF SYLLABLES = ####.0
1370 REM **** CALCULATE NUMBER OF WORDS PER SENTENCE ****
1380 LET F3 = W1/S1
1390 REM **** CALCULATE NUMBER OF SYLLABLES PER WORD ****
1400 LET F4 = S2/W1
1410 REM **** CALCULATE FLESCH INDEX ****
1420 LET F1 = 206.835 - (F3 * 1.015) - (F4 * 84.6)
1430 REM **** CALCULATE DALE INDEX ****
1440 LET F2 = 11.534 - (0.053 * F1)
1450 REM **** CALCULATE EQUIVALENT GRADE LEVEL ****
1460 LET G1 = - ((F1 - 150)/10)
1470 LET G2 = - ((F1 - 110)/5)
1480 LET G3 = - ((F1 - 93)/3.33)
1490 LET G4 = - ((F1 - 140)/6.66)
1500 PRINT USING 1510, F3
1510 : AVERAGE SENTENCE LENGTH = ####.#
1520 PRINT USING 1530, F4
1530 : AVG. SYLLABLES PER WORD = ####.#
1540 PRINT USING 1550, F1
1550 :          FLESCH INDEX = ####.#
1560 PRINT USING 1570, F2
1570 :          DALE INDEX = ####.##
1580 IF F1 GE 70 GOTO 1620
1590 IF F1 GE 60 GOTO 1640
1600 IF F1 GE 50 GOTO 1660
1610 IF F1 GE -50 GOTO 1680
1620 PRINT USING 1690, G1
1630 GOTO 1700
1640 PRINT USING 1690, G2
1650 GOTO 1700
1660 PRINT USING 1690, G3
1670 GOTO 1700
1680 PRINT USING 1690, G4
1690 : GRADE LEVEL EQUIVALENT = ####.#
1700 GOSUB 1770
1710 PRINT
1720 PRINT "DO YOU HAVE ANOTHER INPUT FILE (YES OR NO)"
1730 INPUT A$
1740 IF A$ = "YES" THEN 330
1750 IF A$ = "Y" THEN 330
1760 STOP
1770 PRINT
1780 PRINT " - - -
```



APPENDIX C
STAR COMPUTER INSTRUCTIONS FOR TEXT READABILITY EVALUATION*

THESE ARE THE INSTRUCTIONS ON HOW TO USE THE READABILITY PROGRAM CALLED STAR. THE UNDERLINED WORDS ARE TYPED IN BY THE TERMINAL USER.

SYSTEM ?EDIT

OLD OR NEW-NEW

READY
ENTER

* TEXT TO BE ANALYZED IS WRITTEN AFTER EACH *
* DO NOT USE QUOTATION MARKS IN THE TEXT.
* A TYPICAL SAMPLE SIZE IS ABOUT 100 WORDS LONG
* SUGGESTION: USE THE FOLLOWING FOR PROPER NAMES OF
* PEOPLE OR WORDS YOU DO NOT WANT TO ENTER INTO THE
* SYLLABLE COUNT—(10).

* (C/R) CARRIAGE RETURN
* (C/R) UNTIL READY IS PRINTED BY TERMINAL.

READY
SAVE (SOME FILENAME NOT TO EXCEED EIGHT CHARACTERS)

DATA SAVED—FILENAME
READY
DONE

* These are BASIC instructions compatible with the Honeywell 6000 computer. Modifications may be necessary for compatibility with other time-sharing computer systems.

SYSTEM ?EXEC STAR

ENTER INPUT FILE NAME
?FILENAME

DO YOU WANT TEXT PRINTED? (YES OR NO)
?YES

DO YOU WANT HI-CAL WORDS PRINTED? (YES OR NO)
?YES

CONTENTS OF FILE: FILENAME

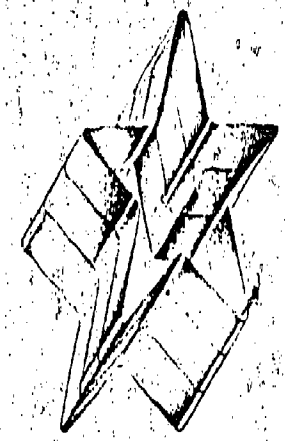
TEXT IS PRINTED OUT IN FULL

WORDS OF 3 SYLLABLES OR MORE ARE PRINTED

NUMBER OF SENTENCES =
NUMBER OF WORDS =
NUMBER OF SYLLABLES =
AVERAGE SENTENCE LENGTH =
AVE. SYLLABLES PER WORD =
FLESCH INDEX =
DALE INDEX =
GRADE LEVEL EQUIVALENT =

DO YOU HAVE ANOTHER INPUT FILE? (YES OR NO)
?NO

READY
SYSTEM?_____



APPENDIX D
EXAMPLES OF TYPICAL "HI-CAL" WORDS AND MORE "READABLE" EQUIVALENTS

The common words listed below show the extent to which long words can be replaced by smaller, more "readable" ones. Along with this guide, a good dictionary can help you improve your written communications.

"Hi-Cal" Words	More "Readable" Substitutes	"Hi-Cal" Words	More "Readable" Substitutes
Abandon	Desert, Leave	Competent	Able
Abbreviate	Shorten	Comprehend	Grasp
Abrasion	Rubbing, Wearing	Confederate	Ally
Accelerate	Hurry, Hasten	Conspicuous	Open
Acceptable	Pleasing, Welcome	Contaminate	Corrupt, Taint
Accident	Mishap	Contemplate	Study
Accommodate	Adapt, Fit, Suit	Convenient	Fit, Ready
Accomplish	Perform, Do	Conversation	Talk, Speech
Accumulate	Collect, Gather	Demonstrate	Prove, Show
Acknowledge	Admit, Allow	Demonstration	Show
Adjacent	Next To, Near	Derivation	Source
Advantageous	Good	Deteriorate	Lessen, Degrade
Alternative	Option	Determine	Find Out, Decide
Amalgamation	Union, Mixture	Duplicate	Copy
Ambiguous	Unclear	Economical	Saving
Anticipation	Hope	Education	Training, Schooling
Appropriate	Take (v), Fitting (adj)	Effervescent	Bubbling
Approximate	About	Elementary	Simple
Automobile	Car	Eliminate	Remove
Capricious	Odd, Fickle	Elucidate	Explain
Combination	Union	Emanate	Issue, Stem
Comfortable	Pleasant	Embellish	Adorn
Communicate	Write, Tell	Employment	Work, Trade
Compensation	Gain	Encourage	Support
Encumbrance	Burden	Indolent	Lazy
Endeavor	Attempt; Try	Industrious	Busy
Enormous	Large, Vast, Huge	Inflexible	Stiff
Equipment	Gear, Array	Infrequent	Rare
Eradicate	Erase, Remove	Ingenious	Clever
Erroneous	False	Instantaneous	Right Now
Especially	Chiefly, Mainly	Intelligible	Clear
Examination	Look Into	Maintenance	Upkeep
Exceptional	Rare, Unique	Magnanimous	Noble, Lofty
Exhausted	Tired	Magnificent	Grand
Extemporaneous	Off Hand	Magnitude	Size
Extravagant	Lavish	Manipulation	Handling
Facsimile	Copy	Manufacture	Make
Felicitate	Greet	Mediate	Study
Frequently	Often	Merchandise	Stock
Fundamental	Basic	Miscellaneous	Mixed, Other
Gigantic	Huge	Modification	Change
Gravitate	Settle	Monotonous	Dull
Gregarious	Social	Necessary	Needed
Habitation	House	Notation	Note
Heterogeneous	Unlike, Mixed	Objective	Object, Goal
Homogeneous	Alike, Same	Obligation	Duty
Horizontal	Flat, Level	Obliterate	Erase
Hypothesis	Theory	Obsolete	Old
Immaculate	Clean	Occupation	Job
Immediately	Right Now	Opportunity	Chance
Immovable	Fixed	Ordinance	Law
Imperturbable	Calm	Ostentation	Show
Inadequate	Lacking	Pageantry	Show
Inappropriate	Not Proper	Palpitation	Throb
Incentive	Motive	Pandemonium	Uproar
Inception	Start	Participate	Take Part
Inclination	Leaning, Slope	Particular	Exact
Indicate	Show	Penetrating	Sharp
Indisputable	Sure	Periphery	Limit
Indistinct	Vague	Permanent	Lasting
Perspicacious	Sharp		
Pertinacious	Firm		
Perturbation	Worry		
Philanthropic	Kind		
Phlegmatic	Dull		
Pondorous	Dull; Heavy		
Predicament	Strait		
Predisposition	Tend		
Preposterous	Absurd		
Presumptuous	Bold, Rash		
Principal	Chief		
Principle	Law		
Proceeding	Action		
Prodigious	Huge		
Proficient	Skilled		
Promulgate	Publish		
Proximity	Nearness		
Pseudonym	Alias		
Punctilious	Formal		
Quiescent	Still		
Recompense	Reward		
Redolence	Odor		
Redundant	Extra		
Regulate	Adjust		
Remuneration	Pay		
Sagacious	Keen		
Scrupulous	Exact		
Stereotype	Copy		
Substantial	Solid		
Systematize	Plan		
Transparent	Clear		
Tremendous	Huge		
Unavailability	Lack		
Utilization	Use		
Vehicle	Car		
Voluminous	Bulky		