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ABSTRACT

The manuscript is a draft written in nontechnical terms, for the purpose of acquainting local and regional occupational administrators with RESOE's functional specifications and basic design concepts. Following a brief introduction is a description of what RESOE does, covering: evaluation of occupational programs; program monitoring and instructional support; student certification; support for guidance activities; cost analysis; fulfillment of State and local reporting requirements; special studies requested by local and regional occupational administrators; and various administrative applications. The flow of information through RESOE and the collection of enrollment and followup data are described. The next section explains the data base maintained by the System for the Evaluation of Educational Data (SEED), with regard to the organization of files within SEED, what SEED is and how it works, and direct access to the SEED-maintained data base. The final section contains guidelines for using RESOE to fulfill local and regional reporting and evaluation requirements, including the request form, the data input sheet, and an example. (JR)

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THE COORDINATION OF
PROGRAM PLANNING AND EVALUATION SYSTEMS
FOR OCCUPATIONAL EDUCATION

VOLUME I:
THE IMPLEMENTATION OF THE
REPORTING AND EVALUATION SYSTEM
FOR OCCUPATIONAL EDUCATION

APPENDIX 1
A LAYMAN'S GUIDE TO THE
REPORTING AND EVALUATION SYSTEM
FOR OCCUPATIONAL EDUCATION

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Submitted to:

The State Education Department of New York
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and
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Table of Contents

	Page
I. Introduction	1
II. What Does RESOE Do	3
A. Evaluation of Occupational Programs-- The Follow-up Survey	3
B. Program Monitoring and Instructional Support	4
C. Student Certification	5
D. Support for Guidance Activities	5
E. Cost Analysis	6
F. Fulfillment of State and Local Reporting Requirements	6
G. Special Studies Requested by Local and Regional Occupational Administrators	7
H. Administrative Applications	8
III. How RESOE Works	9
A. The Flow of Information	9
B. How RESOE Collects Enrollment and Follow-Up Data	11
1. The collection of enrollment data	11
2. The SEED-maintained computer files	13
3. Preparation of enrollment and personnel reports	15
4. Keeping the data base up to date	15
5. Annual report	15
6. The follow-up survey	16

Table of Contents (cont'd)

	Page
7. Conclusion	18
IV. The SEED-maintained Data Base	19
A. The Organization of Files Within SEED	19
B. What is SEED and How Does It Work	22
C. Direct Access to the SEED-maintained Data Base	23
1. Remote data entry	23
2. Computer execution of reports and analyses	24
3. Report and analyses requests	24
V. Guidelines for Using RESOE to Fulfill Local and Regional Reporting and Evaluation Requirements	25
A. The Request Form	25
1. Name of authorized person making request	25
2. Signature of authorized person making request	28
3. Authorization number	28
4. Request number	28
5. Requester's telephone number	28
6. The user indicates whether some or all of the data are already being maintained by RESOE	28
7. The user is asked to indicate whether any data are being provided with the request form	29
8. The user describes his request	29

Table of Contents (cont'd)

	Page
B. The Data Input Sheet	31
1. Form in which data are provided	31
2. The number of variables being entered	31
3. Indicating the row label	31
4. Checking card sequence	32
5. Specifying the variables	32
C. An Example	34

Preface

This manuscript is a draft of the Layman's Guide to the Reporting and Evaluation System for Occupational Education (RESOE). The guide has been written for the purpose of acquainting local and regional occupational administrators with RESOE's functional specifications and basic design concepts.

The layman's guide has been transmitted as a draft so that state officials have an opportunity to evaluate and edit the form and content of the manuscript. After the manuscript has been edited and evaluated, Riverside Research Institute will seek approval to rewrite and publish the guide as a brochure, under the auspices of the State Education Department. The guide may then be used to support the implementation and utilization of RESOE throughout the state.

A Guide to the Reporting and Evaluation System for Occupational Education

I. Introduction

In a recently issued policy statement, the New York State Regents have called for a greater career consciousness throughout New York State's entire educational system, and more comprehensive occupational programs and services. Occupational studies are to be brought more into the mainstream of public education, to close the gap between the world of conventional academic studies and the world of work. If students are able to combine traditional academic studies with the acquisition of skills and knowledge that will sustain them in the world of work, they should have less difficulty becoming happy and productive members of society.

Thus in the years ahead, occupational education will assume a position of greater prominence and responsibility than in any previous period of American education. Occupational education will be expected to play a greater role in guaranteeing an adequately prepared work force, and productive employment for all who are able and willing to work.

In order to develop a more comprehensive and coordinated system of occupational education to serve the needs of all students as well as to meet the manpower requirements of New York State, an occupational education information system has

been designed for planning, coordination, resource allocation, and for assessing the effectiveness of the state's occupational programs. Although the State Education Department requires an information system for these purposes, the main objective of the information system is to provide the teachers, guidance counselors, and administrators of regional and local education agencies with some of the requisite capabilities required to put the Regents' policy recommendations into practice.

Over the past two years the State Education Department's Office of Occupational Education has been implementing an information system for occupational education. This system is called The Reporting and Evaluation System for Occupational Education (RESOE).

This booklet provides a nontechnical description of what RESOE does and how it works. The next section (Section II) describes some of the ways in which RESOE can provide support to local and regional education agencies. Section III describes how RESOE works, and how it has been designed to save time and effort. The fourth section provides more detailed information about how RESOE may be used now and in the future by occupational personnel throughout the state.

II. What Does RESOE Do?

The Reporting and Evaluation System for Occupational Education is a very flexible system designed to assist in a great many planning, evaluation, administrative, and educational activities carried out by the occupational education community. As occupational education grows and changes, RESOE will be able to take on new tasks and perform new functions without extensive modification. This section is limited to a description of some current activities of importance--both administrative and educational--which the system has been designed to support.

As you read this section, however, remember that the system belongs to you. It has been designed to support the administration and further development of occupational education at the local and regional levels. You may have your own ideas about the role that RESOE can play in your BOCES, school district, planning region, or college. Because of the system's flexibility the chances are pretty good that when RESOE is fully implemented, it will be able to meet your requirements.

A. Evaluation of Occupational Programs--The Follow-up Survey

The concepts of program evaluation and accountability are hardly new to occupational education. The most common and traditional method for evaluating occupational programs is to find out what happens to occupational graduates after they

enter the world of work. An effective program is one whose graduates have been able to obtain jobs or advanced training in the occupational area for which they were trained.

Conducting a quality follow-up study has never been easy. First of all, there is the expense and the problems of mailing one or two follow-up survey forms to graduates of occupational programs. Second, there is the problem of graduates not entering the labor force for one reason or another until years after they complete their training. Finally, there is the problem of what to do with the follow-up survey forms returned by the graduates. How should the data be summarized? Has the program served all student groups equally well? Have students who took only certain parts of a program done as well as those who took the whole program? Does the typical student return the follow-up survey?

RESOE uses modern mailing techniques to conduct the follow-up survey. RESOE also analyzes and summarizes the follow-up returns. The system may be used to answer not only the questions asked in the preceding paragraphs, but also other questions that administrators and guidance counselors may raise.

B. Program Monitoring and Instructional Support

In addition to surveying program graduates, RESOE also can analyze the results of other program or course outcomes. For example, it is becoming increasingly popular to

establish behavioral objectives (usually related to skills acquisition) for occupational courses or course modules. After such objectives are established teachers determine whether students have mastered the objectives by using tests to measure skills acquisition or simply by using a skills check list. If such information is obtained and summarized while the course is still in progress, the information can be used as a basis for individualizing instruction by providing ancillary services to those students who require them.

RESOE can summarize data from objective-oriented (i.e., criterion-referenced) tests as well as from skills check lists. RESOE can generate reports and analyses of student progress for administrators, teachers, guidance counselors, parents, and for the students themselves.

C. Student Certification

Students who master either all of a program's vocational objectives, certain key vocational objectives, or perhaps simply a percentage of all program objectives might receive a certificate of mastery from an occupational director or other official. RESOE can do all of the recordkeeping and "number crunching" which would be required for such a certification process.

D. Support for Guidance Activities

RESOE can assist guidance counselors. In addition to performing many administrative functions (such as retrieval

of individual records), RESOE can support the execution of special guidance studies. For example, special studies can be performed to help establish student entry requirements for various occupational courses. This information can be used to counsel students, to channel them into appropriate prevocational or other special programs where necessary, and to help to determine the best mix of courses that a student should take.

E. Cost Analysis

Many occupational directors have said that they see a need for determining program costs. Cost elements which must be considered include personnel costs, other program-specific costs (such as equipment and supplies), and also program nonspecific costs (such as general administrative expenses, plant maintenance, debt service). Program costing capability is currently being developed and will soon be part of RESOE. Once program cost data are available within RESOE, program costs can be compared with program outcomes (i.e., with program effectiveness) such as student mastery data and the results of follow-up surveys.

F. Fulfillment of State and Local Reporting Requirements

Occupational administrators, guidance counselors, and teachers are deluged with reporting requirements. These requirements emanate from the U. S. Office of Education, the State

Education Department, and local and regional sources. Since requests for reports are frequently uncoordinated, much of the information needed for different reports must be collected more than once.

RESOE has been designed to eliminate redundancies in the collection of information required to fulfill reporting requirements. RESOE integrates reporting requirements into ongoing administrative processes, so that reporting to various agencies becomes routine and ceases to be an extra burden.

What reports will the system execute, and what purposes will be served by reporting the information? RESOE can compile and issue mandated reports on occupational enrollments and completions. RESOE can also provide statistical analyses to help to answer questions about occupational education raised by labor unions, parent groups, employers, and advisory bodies, and to help local education authorities to formulate occupational education policy.

RESOE will also provide summaries, statistical analysis, and other reports for the promotion of occupational education services. Such reports might be used in regular newsletters, at public presentations, or for the development of an annual state of occupational education report.

G. Special Studies Requested by Local and Regional Occupational Administrators

RESOE can help occupational administrators or guidance personnel to carry out special studies for the purpose

of planning occupational programs, or for identifying any problems with current offerings. Studies of student vocational interests and abilities, surveys of the labor requirements of regional employers, and intensive evaluative analysis of particular courses or special services can all be performed by RESOE.

H. Administrative Applications

RESOE can also perform administrative data processing functions such as test scoring, enrollment processing, grade reporting, and transcribing. Other administrative processes may be incorporated at a later date if there is a need to do so.

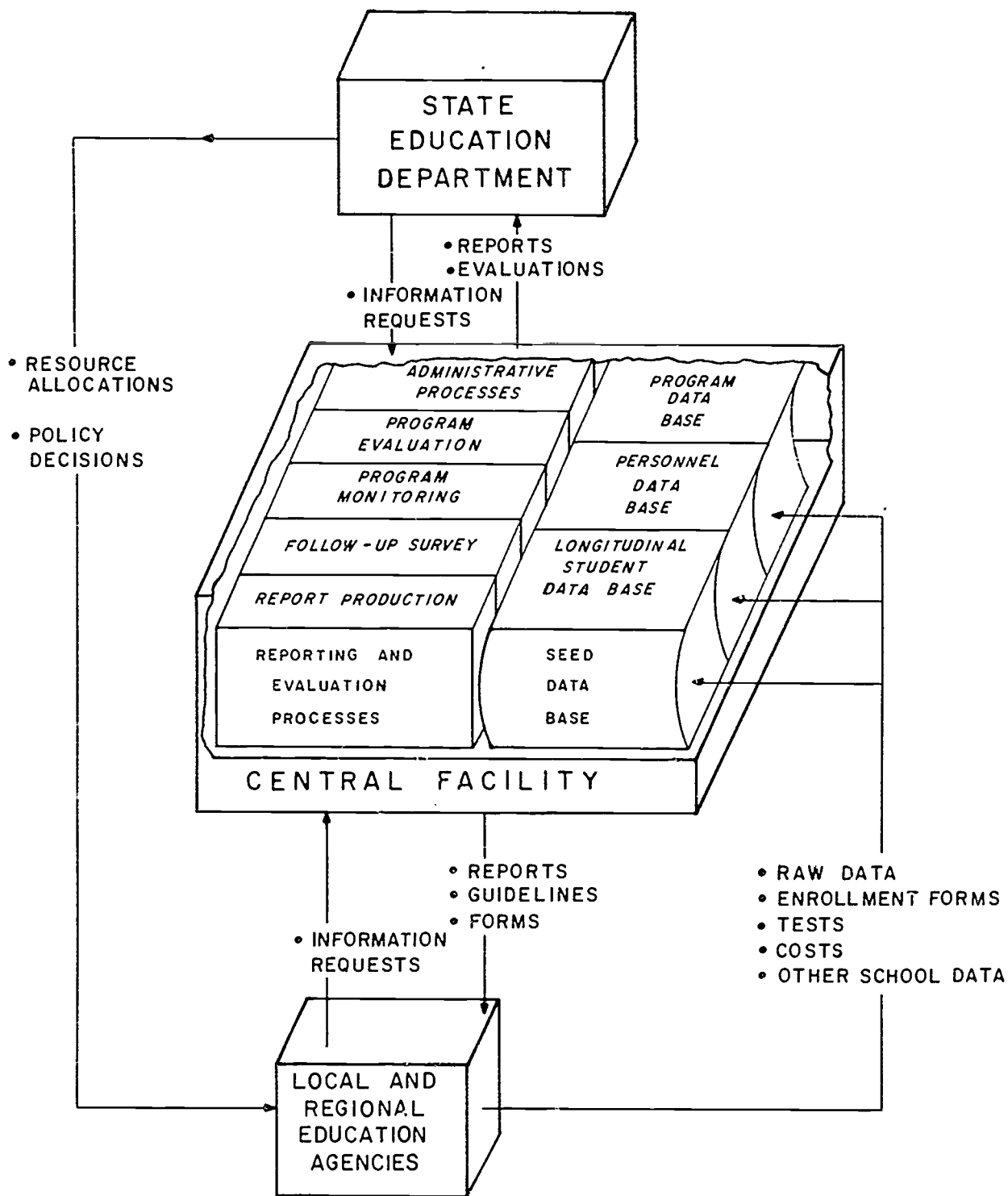
Administrative functions of the type described above often require the same data that are needed for the previously mentioned reporting and evaluation functions that RESOE carries out. Therefore, such administrative functions can be carried out efficiently by the system because no additional data collection is necessary--data need only be gathered once. For example, regular student registration data gathered for local use can also be used for the occupational enrollment reports required by the State Education Department. In this way, enrollment data processing need only be done once. If enrollment data processing for local use were done completely outside of RESOE, then the same enrollment data might have to be re-gathered to fulfill mandated state and federal reporting requirements.

III. How RESOE Works

A. The Flow of Information

Figure 1 shows RESOE's flow of information. There are three participants in RESOE: the State Education Department; a central, statewide data processing facility; and local and regional education agencies. The central data processing facility is operated under the direction of the State Education Department. This facility will provide a variety of reporting services to the State Education Department itself; but, more significantly, the central facility provides a variety of flexible services to local and regional education agencies. Because a single, central, statewide facility performs services for occupational education throughout the state, "economies of scale" can be realized with respect to both the utilization of computing machinery and the utilization of personnel.

The flow of information in Figure 1 is explained most easily by beginning with the local and regional education agencies where occupational courses are taught. The local and regional education agencies send their "raw" data to the central facility. These data are sent either in a prescribed form recommended by the central facility or in any alternative form mutually agreed to by the central facility and the local education agency. The data received at the central facility



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FIG. 1 THE FLOW OF INFORMATION WITHIN THE REPORTING AND EVALUATION SYSTEM FOR OCCUPATIONAL EDUCATION

are organized and maintained by a flexible computer software system called the System for the Evaluation of Educational Data (SEED). (SEED is described in Section IV of this booklet.)

Once the central facility receives the data, it is able to use SEED to do a great many things. First, the central facility can fill information requests from the State Education Department's Office of Occupational Education. Examples of reports which the central facility could file with the New York State Education Department without requiring any effort from regional agencies are reports of adult, secondary, and college occupational enrollments and reports of follow-up survey results.

Second, requests from local agencies for reports, evaluations, analyses, and so on can be met by the central facility. If necessary, local agencies can provide data not already in RESOE's data base in order to enable the central facility to fulfill these requests.*

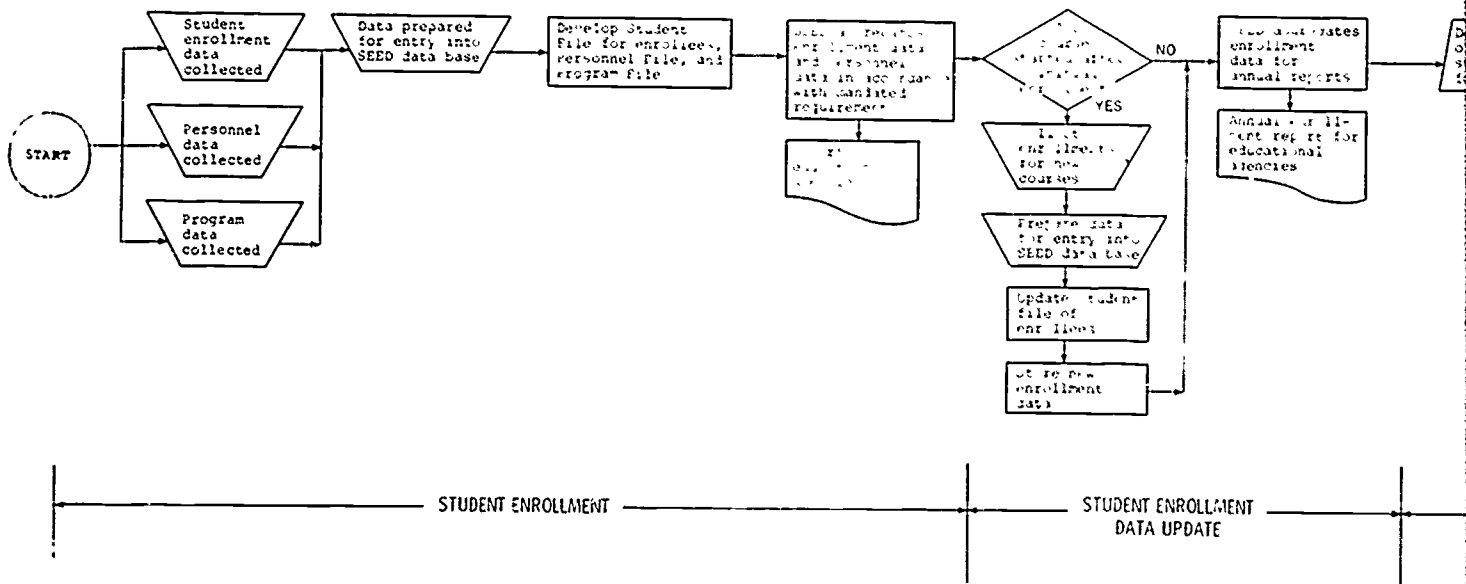
B. How RESOE Collects Enrollment and Follow-Up Data

Figure 2 shows how RESOE works to collect enrollment and follow-up information. This figure illustrates the implementation of the basic system.

1. The collection of enrollment data

During the early part of the fall term, basic information needed by RESOE is obtained from each location

* General procedures for making requests and submitting data are described in Section V of this booklet.



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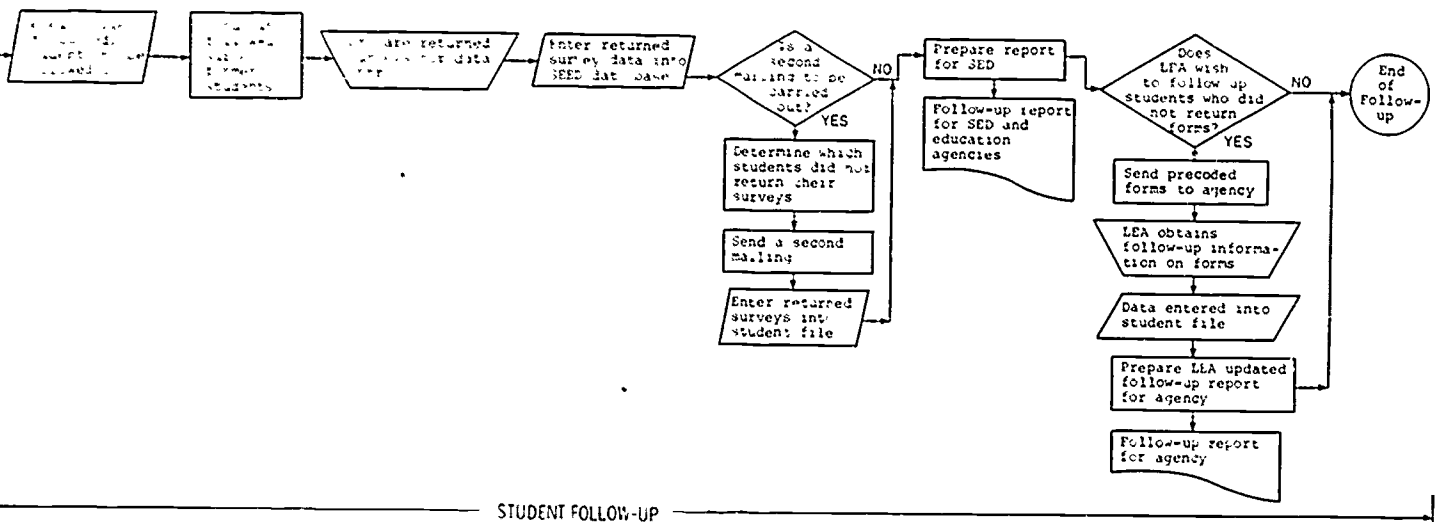


Fig. 1. Flow diagram illustrating the sequence of steps in the first implementation stage of the Reporting and Evaluation System

offering courses in occupational education. This information includes basic student data, personnel data, and will soon include program data as well.

The procedures for collecting student enrollment data may vary from location to location. Frequently, existing (or slightly modified) enrollment, attendance, registration or scheduling processes can be used to obtain the required enrollment information. In other cases, an easily-executed student enrollment survey can be carried out. Forms, instructions, and other support for the execution of this survey are provided by the central facility.

Enrollment, personnel, and program data are then prepared for entry into a SEED-maintained computer data base. The data preparation and data validation processes will depend to some extent upon how the data are collected at the local or regional education agency.

2. The SEED-maintained computer files

Each location which offers occupational education in New York State will have a basic set of confidential SEED-maintained files maintained for it.* The basic student file consists of the following items for each student enrolled in each occupational course:

* Under RESOE, individual personnel and student information is considered to be confidential and is treated as such. Detailed documentation of how confidential data are protected is available upon request.

- Social Security number or other SEED-generated unique numeric identifier;
- date of birth;
- ethnicity;
- sex;
- grade;
- occupational program and course codes for courses in which the student is registered;
- information on special assistance or modified instruction provided to the student; and
- follow-up data (added after students complete the program).

Most of the data for the basic personnel file is obtainable from New York State's Basic Educational Data System (BEDS). However, some additional categories of personnel not fully included in BEDS would be included in the RESOE files: paraprofessionals in secondary occupational education, and teachers and paraprofessionals in adult occupational education.

RESOE will also maintain program-based files. This part of the system is still under development. However, the completed program file will contain information about the educational resources being expended on each program, the cost elements associated with these resources, and records of program outcomes.

3. Preparation of enrollment and personnel reports

After personnel and student data are entered into the computer data base, the central facility prepares the student enrollment and personnel reports required by the New York State Education Department and the U. S. Office of Education. Copies of the reports filed with SED by the central facility are made available to local and regional education agencies.

4. Keeping the data base up to date

Information about occupational courses that begin after the initial enrollment survey is carried out is reported to the central facility by local agencies. Enrollment data for such courses are collected, and the central facility updates the basic files to include the new information.

5. Annual report

In the spring, RESOE makes available to local and regional education agencies updated course enrollments and other information that are useful for completing and filing the occupational education annual report. Since this report requires information which is not in RESOE, the annual report is not completed and filed by the central facility. However, the relevant data that RESOE contains are submitted to local education agencies in a form that facilitates completion of the annual report.

6. The follow-up survey

In the spring, local education authorities work with personnel at the central facility to construct a list consisting of names, identification numbers, and most recent addresses of students who are graduating and any other students that regional and local education agencies would like to have followed up. A file of students who are to be followed up is then created by SEED. Much of the information contained in this follow-up file is obtained from the basic student file described earlier.

RESOE then carries out a follow-up survey using modern survey and mailing techniques. The survey begins with the creation of several sets of computer-generated mailing labels. These labels are used for students that have recently graduated (standard follow-up) and also for students that have been out of school for some time.* The follow-up survey forms are mailed in mid-September. As survey forms are returned, the results are entered into the SEED-maintained data base.

* The follow-up questions have been chosen to meet the requirements of the State Education Department as well as of regional and local education agencies. However, since many occupational directors and guidance counselors have their own ideas about the follow-up questions which should be asked, it is sometimes possible for local and regional education authorities to add questions of their own choice. These questions are included in the follow-up questionnaires that go to occupational graduates from their area.

A second questionnaire can be sent to graduates who do not return the first questionnaire.* As the results of the second questionnaire are received by the central facility, the results are entered into the SEED-maintained data base.

In order to comply with U.S.O.E. mandates concerning the dates by which follow-up data must be reported, the computer file is temporarily closed for two weeks in mid-December, and RESOE generates follow-up reports for SED. Copies of these reports are sent to local and regional education authorities. All students who have not responded by the cut-off date are reported as "status unknown." After the follow-up reports are submitted, the follow-up files are re-opened and remain open for as long as local and regional administrators find desirable.

If personnel at regional or local education agencies wish to personally follow-up those graduates who did not return their follow-up questionnaires, the central facility prepares precoded forms to be used for this purpose. When personnel at the local education agency contact a graduate (by phone, in person, through parents, etc.), the precoded form is completed. The forms are sent to the central facility by the local agency after the local agency has decided that

* Several ideas for boosting the rate of follow-up returns (from the first mailing) are currently being considered by the State Education Department's Division of Occupational Education Planning and by occupational directors throughout the state.

its follow-up return rate is sufficient for its purposes.*
The data from the precoded forms are entered into the SEED-maintained data base. An updated follow-up report is then generated by RESOE upon request. The format and content of this report can be specified by local and regional administrators or guidance personnel to suit their convenience.

7. Conclusion

The enrollment and follow-up procedures described in the preceding paragraphs result in the establishment of a set of basic pupil files which form the core of a locally-oriented educational management information system. These files can be used to meet mandated reporting requirements and also can be used for many other purposes at the option of local and regional education agencies.

* The central facility can provide local and regional education agencies with a report of the extent to which the sample of students who returned their questionnaires is representative of the population of students included in the follow-up survey. This information is helpful to occupational education agencies in deciding whether to continue the follow-up survey.

IV. The SEED-maintained Data Base

The next section of this report briefly describes how the SEED-maintained file system works. There are three subsections. The first subsection provides a description of how pupil, personnel, and program files are organized by SEED. The second subsection is a description of what SEED can do, and how it does it. The third subsection describes some future plans to provide occupational administrators with direct access to their SEED-maintained data base with remote data entry equipment.

A. The Organization of Files Within SEED

Figure 3 provides an example of how a file is organized by SEED. The file contains basic (but fictitious) student data. As illustrated in Figure 3, each file has a name. The files are named according to a standard state-wide nomenclature. The name of the illustrated file is OSWEGO.ST.71. This means Oswego BOCES secondary occupational students from the school year 1971. OSWEGO.AD.71 would be the name of the file for adult students taking courses at the Oswego County BOCES from the school year 1971.

Each file is organized as a matrix. In other words, each file consists of rows and columns. In the matrix illustrated in Figure 3, each horizontal row of the matrix is comprised of information about a single student and each vertical column contains a single type of information. For

MATRIX NAME: OSWEGO.ST.71

<u>LABEL</u>	<u>BIRTH.MONTH</u>	<u>BIRTH.DATE</u>	<u>BIRTH.YR</u>	<u>SEX</u>	<u>ETHNICITY</u>	<u>GRADE</u>	<u>O.E.PROGRAM.CD</u>	<u>STUD.TYPE</u>	<u>LOCAL.CD</u>
083-54-0732	01	10	53	1	1	12	14.0700	2	462
071-34-8444	05	20	56	1	1	09	14.0700	1	463
051-42-7815	04	04	54	1	1	11	14.0700	1	463
035-49-4666	06	17	55	1	1	10	14.0700	1	463
042-74-8231	07	21	55	1	1	10	14.0700	1	463
054-44-7435	12	30	56	1	1	09	14.0700	2	462
071-54-5731	11	28	53	1	2	12	14.0700	2	462
068-16-8428	09	11	53	1	2	12	14.0700	2	462
055-72-2899	10	03	53	1	2	12	14.0700	1	463
062-44-5421	03	02	56	1	2	09	14.0700	3	463
008-35-6793	04	08	55	1	1	10	14.0700	2	462
073-88-7455	04	19	53	1	2	12	14.0700	1	463
042-41-9066	06	17	54	1	2	11	14.0700	2	462
085-23-4283	07	31	53	1	2	12	14.0700	1	462

Fig. 3. A basic student matrix

example, the first row contains information about a student whose Social Security number is 083-54-0732. The student's Social Security number serves as an identifying label in the student matrix. To the right of the Social Security number are information elements about the student. The first three columns of information contain the student's month of birth, day of birth, and year of birth. These three pieces of information or variables are labeled BIRTH.MONTH, BIRTH.DAY, and BIRTH.YR in the basic student matrix. The birth date information is followed by ETHNICITY, SEX, and GRADE. Race and sex are indicated by numeric codes; for example, 1 for male, and 2 for female. Other data in the basic matrix include standard occupational program codes (O.E. Program.CD) and type of student. Local course codes (LOCAL.CD) may also be entered at local option since the federal standard codes are frequently not used at local or regional sites.* All of the column labels (e.g., BIRTH.YEAR, SEX, etc.) and numeric codings in the basic matrices are the same across the state.

Personnel matrices also are organized into rows and columns, with teachers as the rows and various information about teachers as the columns. Similarly, program matrices are organized by rows and columns. Each row

* Additional course and program codes may be added to the basic matrices for students taking two or more occupational courses within the same year.

of the matrix is a course or program, and the columns contain information about the programs.

B. What Is SEED and How Does It Work?

RESOE is able to carry out general reporting processes and meet the individual needs of occupational administrators by maintaining occupational education files in an easily accessed computer data base.

RESOE's data base is controlled by a flexible set of coordinated computer programs specifically designed for the evaluation of educational data. This set of computer programs is called the System for the Evaluation of Educational Data (SEED). SEED is used to maintain the state-wide data base for occupational education from which evaluations, reports, and other products for occupational education are produced. SEED's capability for flexible report writing and data summarization allows data to be presented in many forms.

Some examples of reports that can be generated by SEED include frequency distributions, cross-tabulations, graphs of various types, listings of particular groups of students by program, ethnicity, educational background, and other characteristics included in the data base. Since data in SEED-generated reports are labeled by the computer according to directions provided by the educator requesting the report, SEED reports are easy to interpret. For those

who require statistical analysis for reporting or evaluation purposes, SEED includes a full complement of the descriptive and inferential statistics that are normally used in education. SEED's statistical capability includes analyses of variance and covariance, t-tests, various correlations (biserial, tetrachoric, product-moment), multiple regression analysis, multiple discriminant analysis, factor analysis, contingency table analyses, and many many others. The central facility provides support for the selection of appropriate statistics and analytic methods to meet particular circumstances.

Finally, SEED is easy to use. It has an English language control system, which makes it unnecessary to learn the language of the computer. For those who wish to undertake the task, SEED can be learned in approximately four weeks. However, SEED need not be learned. The central facility will execute requested analyses on behalf of any authorized user.

C. Direct Access to the SEED-maintained Data Base

In the future, occupational educators who choose to make extensive use of RESOE can be provided with inexpensive remote terminals. These terminals could be applied to any of the following purposes in utilizing RESOE.

1. Remote data entry

Terminals equipped with a remote tape unit, printer and cathode ray tube could be used by clerks for data verification, and for direct entry (over telephone lines) into the SEED-maintained data base.

2. Computer execution of reports and analyses

The experienced user could obtain reports and analyses by entering SEED commands to the central facility's computer through the terminal. In this way, the user has direct access to the data base of his education agency. Central facility personnel would be on hand to answer any questions concerning SEED or RESOE operations. These questions could be asked and answered via the remote terminal. Computer output could be printed at the remote terminal, or printed at the central facility and then sent to the user.

3. Report and analyses requests

After the central facility has "set up" or programmed a given report or analysis for a local or regional education agency, the report or analysis is assigned a code number, which appears on the user's computer outputs. When the user requires the same report or analysis for a different set of data (e.g., new enrollees), he would enter the correct request code number through the remote terminal. The central facility would then retrieve from its automated records the appropriate SEED commands, and generate the requested analyses and reports.

V. Guidelines for Using RESOE to Fulfill Local and Regional Reporting and Evaluation Requirements

In the previous section, direct access to the central facility through remote terminals was discussed. However, many users may prefer to request reports by means of written request procedures. The request forms may be completed by occupational administrators if they choose to do so. Alternatively, authorized administrators may also telephone their request to the central facility, and a member of the central facility staff will complete the form and return it for signature.

The request procedures are described in the following paragraphs, and an example of how these procedures are used is also given.

A. The Request Form

Figure 4 shows an example of a request form. This form must be completed by an occupational administrator who had been authorized to obtain information from the system. Each item on the request form is explained in the following paragraphs.

1. Name of authorized person making request

The system incorporates several procedures to guarantee the confidentiality of student and personnel records. One of these procedures is that only authorized personnel are permitted access to specific parts of RESOE's data base.

REPORTING AND EVALUATION SYSTEM
ANALYSIS & REPORT REQUEST FORM

Date

1. Name of authorized person making request _____

2. Requester's signature _____

5. Telephone number _____

3. Authorization number

--	--	--

4. Request number

--	--	--

6. Are some of the data required to fulfill the request already in the system?

No Skip to item 7

Yes State the names of the matrices in which the data are located. Each name should begin in the left box and not exceed 16 characters.

a.

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

b.

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

c.

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

7. Are data being provided with this request?

No Skip to part 8

Yes Please complete a data input sheet and answer the following questions

a. Are data provided here to be merged into an existing matrix which has already been established for you?

No Skip to part 8

Yes Name of existing matrix

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

(describe in part 8)

b. Are the data provided here to be entered into a new matrix which the central facility will maintain until further notice?

No

Yes Name of new matrix

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Fig. 4. Example of a paper request form

2. Signature of authorized person making request

Signatures of authorized users will be on file at the computer facility where the occupational education data base is maintained.

3. Authorization number

Each authorized user is given an authorization number. This number is entered on all request forms. It serves to further protect the confidentiality of data, and also plays a role in RESOE's recordkeeping and accounting processes.

4. Request number

The request number is a number which the occupational educator assigns to his request. It will appear on all computer outputs which are generated in fulfillment of the request, and will enable the user to refer easily to these outputs in subsequent requests or other communications with the central facility.

5. Requester's telephone number

The user's telephone number is needed in the event that RESOE personnel require any additional information from him.

6. The user indicates whether some or all of the data are already being maintained by RESOE

If some of the data are already in RESOE, the user indicates the names of the matrices in which the data

may be found^{*} in the boxes provided.

7. The user is asked to indicate whether any data are being provided with the request form

If data are being provided with the request form, the user completes a data input sheet which serves to describe the data that are being sent. (The data input sheet is illustrated in Figure 5 and is described in the next subsection.) If the data provided are to be combined with data in a matrix which already exists within RESOE, the name of this existing matrix is specified by the user.

8. The user describes his request

In part 8 the user describes his request, referring to data matrices and to the variables in them by the names (i.e., labels) which are used by RESOE. For example, the matrix in Figure 3 of this booklet is called OSWEGO.ST.71 and its variables are: BIRTH.MONTH, BIRTH.DAY, BIRTH.YR, SEX, etc. Any special titles which the user would like to have appear in his report or evaluation output should be indicated in this section and should be surrounded by quotation marks.

* The requestor is able to provide the names of matrices because he had previously received from RESOE a computer-generated description of all matrices of student, personnel, and program data which are being maintained for him.

DATA INPUT SHEET (ATTACH TO REQUEST FORM)

Form in which data are being provided _____ Number of input variables _____
 cards tape other (specify) _____ (Do not include labels)

Short description of data: _____

Do cards or tape records have a row label? _____

No Yes In which columns may the label be found? Columns: _____
 Character(s) _____
 Card Columns _____
 card 1 _____
 card 2 _____
 card 3 _____

If more than one card per row of data is being submitted, identify any characters which may be checked to indicate card sequence and give the column numbers on which these characters appear.

VARIABLES	CARD #	CARD POSITION	TOTAL DECIMAL PLACES	SPECIFICATION OF VARIABLES												HIGHEST SCORE	LOWEST SCORE	MISSING SCORE
				VARIABLE LABEL														
1																		
2																		
3																		
4																		
5																		
6																		
7																		
8																		
9																		
10																		
11																		
12																		

Fig. 5. Example of data input sheet

B. The Data Input Sheet

When the user wishes to enter nonbasic data into RESOE, (i.e., data not contained in one of the basic matrices), a "Data Input Sheet" is used. This sheet is illustrated in Figure 5 and is discussed in the following paragraphs.

1. Form in which data are provided

Punch cards are always acceptable, as is magnetic tape (provided the tape is organized so that it may be read by SEED). Mark-sense cards, Op-Scan forms or just sheets of data are also acceptable provided that special arrangements are made in advance with the central facility.

2. The number of variables being entered

At the upper right hand corner of the form, the user indicates the number of variables or pieces of information being submitted for each student, employee or program. The row label (which is the student Social Security number in the basic student matrix) is not included in the count of variables. For example, there are 9 variables contained in the basic student matrix displayed in Figure 3: BIRTH.MONTH, BIRTH.DATE, BIRTH.YR, SEX, RACE, GRADE, O.E. PROGRAM.CD, STUDENT.TYPE, and LOCAL.CD.

3. Indicating the row label

The user also indicates where row labels appear in the data being submitted. For example, student data would normally be labeled with each student's Social Security

number, and this number would be in card columns one through nine on the submitted cards.

4. Checking card sequence

If more than one card per student is being submitted, a sequence number should appear on each card. For example, the first card belonging to a student might have a "1" or an "A" punched on it in a particular column, and the second card for that student might have a "2" or a "B" punched on it.

5. Specifying the variables

The remainder of the form is devoted to a discussion of the data which are being submitted. Each variable is described on the data input sheet.

The first four pieces of information (CARD #, TOTAL COLUMNS, DECIMAL PLACES, and VARIABLE LABEL) are required to specify the variable. The next three pieces of information (HIGHEST SCORE, LOWEST SCORE, and MISSING SCORE) are optional.

a. In the column labeled CARD #, the user indicates the sequence number for the card on which the variable is found.

b. In the column labeled CARD POSITION, the columns in which the variable appears are given columns that the variable occupies (i.e., 7-12).

c. DECIMAL PLACES is used to indicate the total number of decimal places used in giving numerical values of the variable. This number ranges from zero (when there are no decimal places) to the total number of card column positions used for that variable.

d. The VARIABLE LABEL is provided by the user. The label can be up to 16 characters. It must begin with a letter and cannot have any blank spaces in the middle (a period is used between the words of a two-word label to fill up the space).

e. If HIGHEST SCORE is indicated, the computer is instructed not to accept any scores which are higher. The converse operation is carried out if LOWEST SCORE is entered. These operations provide a safeguard against out-of-range, erroneous information.

f. The next piece of information, MISSING SCORE, works a little differently. Blank spaces on cards in places where numbers are expected are always taken to mean that the scores are missing. The MISSING SCORE option permits the requester to indicate that a certain numeric or alphabetic character (of his choice) also signifies missing data. This option is useful when the user has received standard punch cards employing different conventions for indicating missing data from an external source (e.g., a test publisher).

C. An Example

A guidance counselor at a regional occupational center is in the process of determining which students to enroll in a newly established remedial reading program. Suppose that there are more needy students than positions available in the program. Then the counselor must try to select those students who would receive the greatest benefits from this remedial program.

In order to make this selection, the guidance counselor wishes to assess the effects of reading competence on student performance in various occupational programs. The guidance counselor has a measure of student performance (end-of-year grades) and a measure of reading competence (a standardized reading test) for the students taking occupational courses at his education agency.

The guidance counselor wishes to enter his reading test scores and end-of-year grades into a special file created by the central facility so that he may analyze his results. He completes the request forms in the following manner. As shown in Figure 6, the guidance counselor enters his name, signature, authorization number, telephone number, and a request sequence number on the request form.

He answers question 6 affirmatively because some of the data required to fulfill his request come from the basic

or core student matrix which has been established for students at his occupational center. The predetermined standard name of his basic student matrix is HERKIMER.ST.71: Herkimer County secondary occupational students from the 1970-1971 academic year. The counselor enters the standard name of this basic matrix on the form.

Question 7 is also answered affirmatively because data not currently held at the central facility are also needed to fulfill the request. Therefore, the counselor must complete a Data Input Sheet. A completed copy of this sheet appears as Figure 7.

On the Data Input Sheet, the guidance counselor indicates that he is submitting his data to the central facility on punched cards. He also indicates that the cards have a row label (which happens to be the student Social Security number) and that this row label may be found in card columns one through nine. Only one card per student is being entered, so that a card sequence check is unnecessary.*

* If two or more cards of data for each student were to be entered, the card sequence check would serve to validate that, for each student, the first card was really first, the second card was really second, and so on, in the deck of cards being entered.

The counselor then specifies the variables he is entering. As indicated in Figure 6, the first variable, end-of-year grades, has been called COURSE.GRADE by the guidance counselor. This variable is a two- or three-place number punched in card columns 11-13. It has no decimal places. The highest score that this variable can assume is 100 and the lowest score is 60.

The standard reading test (labeled READING.TEST) is punched in columns 14-15, has no decimal places, and ranges from 20 to 80.

The guidance counselor has also decided to enter his yearly attendance data at this time, even though he is not planning to use the attendance information in this particular request. He has labeled the attendance data DAYS.ABSENT, because the attendance is given as the total number of days during the year on which the student was absent. This number is punched in columns 17-21. The number has a decimal place because a student could be absent for a fraction of a day. DAYS.ABSENT ranges from zero days absent to one hundred days absent.

The counselor then completes part 7 of the Analysis and Report request form (see Figure 6). He indicates that he wishes a new matrix to be created for him which is to be called HERK.READ.ASSESS.

In part 8 of the request form, the counselor indicates what he wants to have done with the data. In this example (see Figure 6 cont'd), the counselor has asked the central facility to enter the three student variables that he has provided. Then, by matching on Social Security numbers, the counselor has asked the central facility to locate in the basic student file (HERKIMER.ST.71) the students for whom he is entering the three variables, and to create a new matrix called HERK.READ.ASSESS which consists of the three variables being entered, as well as student information retrieved from HERKIMER.ST.71. The counselor then requests some statistical analyses which will enable him to make some decisions about his reading program.

REPORTING AND EVALUATION SYSTEM
ANALYSIS & REPORT REQUEST FORM

Date

1. Name of authorized person making request LARRY SMITH 3. Authorization number

3	0	4
---	---	---

2. Requester's signature Larry Smith 4. Request number

0	0	1
---	---	---

5. Telephone number 403-702-8114

6. Are some of the data required to fulfill the request already in the system?

No Skip to item 7

Yes State the names of the matrices in which the data are located. Each name should begin in the left box and not exceed 16 characters.

a.

H	E	R	K	I	M	E	R	.	S	T	.	7	1		
---	---	---	---	---	---	---	---	---	---	---	---	---	---	--	--

b.

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

c.

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

7. Are data being provided with this request?

No Skip to part 8

Yes Please complete a data input sheet and answer the following questions

a. Are data provided here to be merged into an existing matrix which has already been established for you?

No Skip to part 8

Yes Name of existing matrix

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

(describe in part 8)

b. Are the data provided here to be entered into a new matrix which the central facility will maintain until further notice?

No

Yes Name of new matrix

H	E	R	K	.	R	E	A	D	.	A	S	S	E	S	S
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Fig. 6. Example of a completed request form

8. Description of request. Please use matrix names and column names or position numbers wherever possible. Any special titles which you would like to have appear on outputs should be included in this section surrounded by quotation marks.

Please put the following title on output: "Assessment of Reading Capability." Please create a new matrix which you are to call HERK.READ.ASSESS. The matrix will include the submitted data as well as the following information obtainable from HERKIMER.ST.71: ETHNICITY, PROGRAM.CODE, SEX, BIRTH.YR. Since the submitted data and HERKIMER.ST.71 both contain student Social Security number, you should not have difficulty putting the two sets of information together. However, please send me a list of students with reading scores that cannot be located in HERKIMER.ST.71. If the number of students who cannot be located is less than 20, proceed with the analysis.

Please give me an average reading score for students having one of the following federal PROGRAM.CODE numbers: 04.0800, 14.0300, 14.0700, 16.0107, 17.1300, 17.2900, 17.2300. Then assess the differences over programs in student reading competence. Then, for each PROGRAM.CODE number listed above, execute a correlation between the students' reading scores and their end-of-year grades. Please save HERK.READ.ASSESS. After I see the means and correlations, I'll decide whether I need any additional analyses involving SEX, ETHNICITY, or DAYS.ABSENT.

Second Page of Request Form

Fig. 6 (cont'd) Completed request form.

DATA INPUT SHEET (ATTACH TO REQUEST FORM)

Form in which data are being provided cards tape other (specify) _____ Number of input variables 3

(Do not include labels)

Short description of data: _____

Do cards or tape records have a row label? _____

No Yes In which columns may the label be found? Columns: 1-9

Character(s) Card Columns
 card 1 _____
 card 2 _____
 card 3 _____

If more than one card per row of data is being submitted, identify any characters which may be checked to indicate card sequence and give the column numbers on which these characters appear.

VARIABLES	CARD #	CARD POSITION	TOTAL DECIMAL PLACES	SPECIFICATION OF VARIABLES												HIGHEST SCORE	LOWEST SCORE	MISSING SCORE
				VARIABLE LABEL														
1	1	11-13	0	C	O	R	S	E	.	G	R	A	D	E	100	60		
2	1	14-15	0	R	E	A	D	I	N	G	.	T	E	S	T	80	20	
3	1	17-21	1	D	A	Y	S	.	A	B	S	E	N	T	100.0	0.0		
4																		
5																		
6																		
7																		
8																		
9																		
10																		
11																		
12																		

Fig. 7 Example of a completed data input sheet