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ABSTRACT
              The Information Processing Unit of the Council for
Exceptional Children Information Center acquires, abstracts, indexes,
stores, retrieves, and disseminates a comprehensive bank of
information regarding the education of exceptional children. These
functions are served by three sections: Acquisitions, Indexing and
Abstracting, and Information Services. This paper focuses on that
section which deals with the dissemination of information upon
request and the storage and retrieval supportive to that process. A
proposed plan to systematize and analyze the process, requests and
products of the Unit is outlined and specific techniques for
facilitating the plan are described. (Author/AB)

A PLAN TO SYSTEMATIZE AND COORDINATE

OPERATIONS WITHIN A SECTION

The Information Center
ERIC Clearinghouse on Exceptional Children
The Council for Exceptional Children

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              June 29, 1971

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A Plan to Systematize and Coordinate Operations Within A Section

The Information Processing Unit of the CEC Information Center acquires, abstracts, indexes, stores, retrieves, and disseminates a comprehensive bank of information regarding the education of exceptional children. These functions are served by three sections -- Acquisitions, Indexing and Abstracting, and Information Services. This paper will focus on that section which deals with the dissemination of information upon request and the storage and retrieval supportive to that process.* In order to make information available efficiently, the Information Services Section must systematically store and readily retrieve it. An operation which solicits requests from users, negotiates them from the resources, and then seeks out requesters' reactions to the service is obligated to perform its functions as effectively and inexpensively as possible.

Users, as diverse and nebulous as their need may appear, approach the Information Services Unit in a bonafide effort to learn. Their need, as diverse as they, suggests that the unit should possess graduated skills and products. A student seeking career information can be assisted with a routine brochure and pamphlet; an administrator, responsible for the educational well-being of thousands, seeking program guidance requires the skills of a search-competent analyst. Products available, likewise, must be graduated in ways

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*A full list of current products available to users can be found in Appendix A. Abstracts called on hand searches are also available.

that correspond to the nature of the user as well as to his present

need for information. Ongoing efforts to improve the quality of

services rendered and to control the supply of documents available

are essential to the viability of this system.

A. Background to the Proposed Plan

Prior to this proposal, which describes a plan to systematize and analyze the process, requests and products were handled a priori -- that is as requests were received, the personnel responded with the most appropriate services and documents available. The original proposal for innovating an automated and perpetual recording and analysis of request data was introduced by the author in March.* Differentiated requests were satisfied by the limited staff from a bank of data; hand searches (time consuming as they have been) were conducted for non-routine questions; and referrals to more pertinent sources were made. The volume of requests mounted steadily and overwhelmingly. A virtual tide of outside documents, including those from the Bureau of Education for the Handicapped, inundated the analysts and required both storage and inventory control.

Alternative Roles for the Center

Until recently, this a priori process was not a component of any deliberate role assigned to the Information Center, other than dissemination of available data upon user request. At this point in time, the Center is consciously grappling with several concepts which will more clearly direct its energies and monies.

Will the Information Center function as both a generalist and a localist information agency providing assistance to the high level users whose sights are nationally - or regionally - directed? Or will the Center focus sharply on local, pragmatic users, like teachers and students, providing the proposed materials** so often requested? Some specialists would have the Center serve only the former group in the hope that the SEIMC Network Offices be developed even more broadly to service teachers, students, researchers, parents, etc., in their "own backyards." Meanwhile, the Center attempts to be "all things to all people."

On another functional dimension, the Center is exploring not only what it can and will be for the special education user, but also what it cannot and will not be. This determination is exceedingly important within the scope of energy and fiscal constraints and realities. Whom shall we serve in depth and whom shall we serve superficially? Which products do we finance through design and production and which do we interest other "angels" to subsidize or totally support? What questions do we echo to other agencies and what questions do we negotiate with the user for better articulation? What course do we assume for our growing "regular education" user groups; do we expend as much on their need as on our traditional user?

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*Perpetual Recording and Analysis of Information Requests, C. Fineblum, CEC, March 18, 1971.

**Brochures, pamphlets, computer-generated bibliographies, information packets, etc.

More mundanely, but as importantly, are considerations of unit
costs. How much do we spend on the fulfillment of each request?
Should the range of cost be related to the impact of the user's
position on the child(ren)'s educational growth; to the total number
of children affected by this information; to the precision or lack
of precision of the query (it costs money and user's time to neg-
otiate a fuzzy question); to the number of copies allowable to any
user regardless of position and influence? If, indeed, these all
become priorities for decision-making, then what is their hierarchy?

Whatever the outcomes, we do know now that unit costs drop when
prepared materials can be satisfactorily used. The cost of generating
new responses is considerably greater. Therefore, it behooves the
Center to transitionalize as many "generated" responses into "prepared"
ones as quickly as feasible. This would entail the development
and maintenance of a flexible file of completed searches catalogued
by descriptor and available for rapid transmittal to users.

Analysis of the Request File

In July, 1970, the Information Utilization Unit initiated an
analysis of requests received by the Information Services Unit as
one component of its larger User Study, which sought to define
more clearly the identity and needs of special education personnel
and parents.* Requests received during the one year were analyzed
for the following considerations:

    Identity of the User
    Nature of Queries in Each Contact
    The Actual Modes of Response to User

A code for each of these dimensions was developed and the data
were recorded for analysis. Interesting patterns and trends emerged
from this initial study.

When the User Study was terminated, this writer initiated an
analysis of the 4th Q, 1970 requests in order to observe the new
data. Utilizing some of the initial methodology and additonal
techniques (consisting of new dimensions -- handicapping conditions,
the role assignment of the users, the number of queries/contacts
and specific requests for the bibliography series), the follow-up
study replicated the previous patterns. It was apparent that the
volume of requests continued to soar** although seasonal influences
created some dips and peaks. In addition, it was observed that
broad user types were narrowing to sub-specialities and were
increasing in number although the ratio within user type remained
relatively constant.*** The growing number and diversity of users
and requests required an increasingly more complex and burdensome
tabulation procedure. With so many categoric types and study

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*An Analysis of the Information Requests Received by the
CEC Information Center, 3rd Q, 1969 - 2nd Q, 1970, Feb., 1970.
    **3rd Q, 1969 - 607 requests. 3rd Q, 1970 - 1,433 requests.
See Appendix B.
    *** Observations Recorded Since the IRF* Analysis, C.
ineblum, CEC, April 5, 1971.

parameters, the number of data sheets increased steadily and the task of hand tabulating these data became painstaking and time-consuming.*

However, more than tedium, the following factors served as the primary motivations for systematizing this operation:

1. The time lag between fulfillment of the request and the recording.

2. The sporadic tempo in recording, instead of a smooth and ongoing procedure

3. The second-guessing that inevitably occurs when the research analyst must identify the user, the request, and the response in lieu of the defacto information analyst who serviced the user.

It became increasingly apparent that a technique for rapidly recording the essential dimensions of a request during one handling must be devised. That proposal, Perpetual Recording and Analysis of Information Requests, sought to establish a system wherein several operations, germane to Unit objectives, would be accomplished simultaneously. The backbone of this operational system was to make full use of available computers for recording and analysis of requests. Although it was outside of the original proposal's re-commendations, use of Dialog, as well as BIRS, was anticipated as a complementary and essential tool in the information process. This complex, it is anticipated, will actualize a most efficient operation for information services -- boosting the special education user and his beneficiaries.

*Sample Tabulation Sheets used in data collections can be found in Appendix C.

B. Purposes of the Plan

Initially, the plan was conceived to structure an ongoing documentation to be used for evaluation and improvement of the request processing system as well as the analysis of those data. It soon became obvious that the two following serendiptous benefits could also be realized without any effort:

An inventory and quality control of the materials available and services rendered.

A continuous index for generating new products or phasing out existent, but obsolete, ones.

Therefore, four interrelated operations would be initiated and sustained with one codified sheet prepared by the analysts in the Service Section.

Four Operations Enabled by the Plan

1. An inventory of materials and products. What in the storehouse is needed, on order, and how many remain?

2. New product development and review of user information needs. What new fields or concepts indicate accelerated (decelerated) demands? At what frequency do users request specific content materials? Are there seasonal patterns that suggest special readiness and delivery plans?

3. Patterns of present use and need (contrasted to previous ones) are meaningful pacesetters for forecasting and planning. Can we expect teachers to request pragmatic translations of research? Are administrators interested in "Precision Teaching?" Do regular education students need guides for instructing exceptional children?

4. An Orientation for Section Dynamics. A continuous monitoring of the system's operation will imply modifications for more effective service. Has the nature of the request, the identity of the user, the spectrum of the available materials and services inferred changes in the interaction of the personnel, additional or diversified skills, new use of machines and equipment, liaison with other agencies, and a myriad of other functions? Are present roles providing the most economical dynamics?

5. Automatically generated data for the ERIC Quarterly Report. How can the codified data be converted to ERIC terms? Will an equivalence listing* permit a more simplified research procedure?

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*A sample coding sheet and equivalence terms can be found in Appendix D.

C. Dynamics of the Plan

In order to fulfill the foregoing functions in the system, only one set of data is needed. Those dimensions identified by the analyst when the request arrives will be considered by both data processing and the research group to derive meaningful patterns:

the identity of the user,
the nature of his request(s),
the Center's mode(s) of response.

Resources for System Implementation

Human Resources

The request processing personnel will consist of a supervisor and at least two other analysts. The first analyst will possess skills developed in communication and computer operation. The other analyst will be a clerical person already experienced with the organization and its products. The supervisor's skills encompass both special education and library science expertise. Together they perform the services needed to efficiently process requests as received.

The Data Processing Unit at CEC will train and make available a staff member to receive the data already coded for storage.

The research analyst will retrieve and analyze the data so as to recommend practices from demonstrated trends.

Material Resources

The Information Services Section may select one or more materials from a growing list of available products to return to the user.

Directories, compendia, brochures, and many other reference volumes are used for referrals to more appropriate sources for information.

Machine Resources

The Dialog System

Heretofore, time-consuming hand searches have been the Center's principal tool for providing abstracts and citaticns to those who are responsible for the education of many youngsters.

The installation of Dialog* with its great precision and fast returns, will assure a significant savings to the Center, and thus the user, in terms of time/unit request spent. Its printouts, as they become a library file in themselves, can be retrieved and transmitted by clerical assistants quickly.

The BIRS installation currently in use at CEC will provide storage and retrieval capability for the data recorded by the analyst and punched by Data Processing.

Macro-dynamics   Interdepartmental

The interaction amongst the three departments involved can be pictured in the following way:
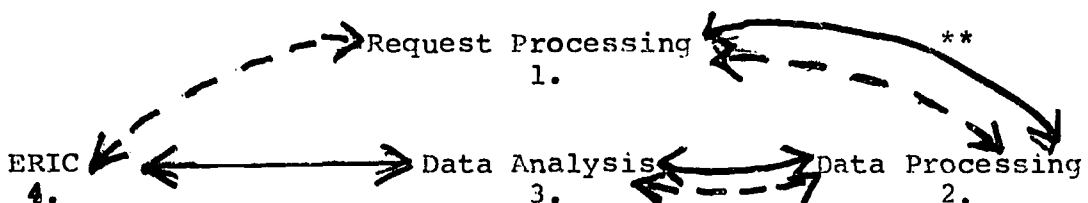
Information, already described, will be coded on form sheets by the analyst in the Service Section. The coded form will be sent on to the keypuncher in Data Processing. The stored data can then be recalled by the research analyst as needed for planning. ERIC reports are generated from the recalled data. Above all, a dialogue within these separate groups must be assured so that each openly communicates goals and problems to the other.

*Some salient features of Dialog at CEC can be found in Appendix E.

** _____ flow of data
     ------- idea transaction

Macro-dynamics Within Each Department

The dynamics within each department can be viewed as a trans-
action of materials and information between the personnel involved.
The section head in each will function as trainer and monitor
purviewing the flow of services and products so as to facilitate
quality in personnel performance and ease of information exchange.
Training is an essential consideration in promoting efficiency
within the new system. Although new learnings will occur quite
naturally to astute personnel, as they man the equipment and utilize
the materials, planned training sessions will optimize and hasten
the best use of those tools and reduce barriers in verbal and
action communications, most often the single largest obstacle to
success in information services. Training workshops in-house and
in-field will be discussed later. A training manual should be
developed for our prime user groups (The SEIMC Network office,
BEH personnel, D & R Labs, other clearinghouses, etc.,) to enhance
their understanding of this system's goals, equipment, and materials.
Any efforts to match the vocabularies used by the requester and
analyst will guarantee better services. Since the data base utilized
will be a common one, prime users should be aware of the latitude
of the base so that their search questions will precisely call a
maximum number of "hits." In addition, knowledge of the Dialog
System will permit these users to eventually pinpoint direct requests
in search-worthy terms and configurations.

1. Dynamics Within the Services Section -- Request Processing

The objectives for this section involve the following
operations:

to receive, interpret, and fill requests
to continuously enhance personnel skills
to secure for and transmit to the user quality materials
to evaluate the appropriate role of the section and of
        the service rendered related to the user needs
        and costs involved.

The last objective is premised upon a conscious determina-
tion of the parameters for services assigned by the Center.
That is, what requests and chores does the Center choose not
to fill under realistic constraints of time and funds? This
is a most germane concern, especially since other information
agents choose to and can more appropriately negotiate such needs.

Personnel

Clerk-analyst
Dialog Specialist
Supervisor-analyst

A model for flow of request through the system can be found in Appendix F.*

b. Clerk Analyst

The clerk-analyst serves a dual function, analytic and clerical.

Analytic

As the clerk receives requests, she will select for herself those which can be filled with "prepared" materials. Other requests, which require search and referral services, are transmitted to the Dialog-Specialist. The clerk selects products and materials from the shelves appropriate to the request. At that time she checks the required information on the coded sheet indicating which product was returned by assigned number. It should be noted that the amount of time spent on that response will be entered.

Clerical

1. The clerk compiles the proper packages of prepared materials prescribed at her own discretion.

2. She readies all other packages prescribed by the other personnel (products of searches and referrals) when the coded sheet is returned verifying that all items noted on the coded sheet have been accounted for.

3. The clerk types any original responses generated by the analyst and incorporates these with the materials retrieved.

4. The clerk checks for the smooth flow of mail from the Center through the mail-room.

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*The sequence of personnel duties described here follows the flow of requests through the section

> 5)   The clerk will alert the section supervisor
>   to any problems regarding materials' avail-
>   ability or quantity control.
>
> 6)   The clerk will return the coded sheets to the
>   keypuncher upon completion of the responses.

In an effort to minimize the cost of this operation
without sacrificing the quality of the service, as many
duties as can be effectively handled will be given to
junior employees. Not only does this filtration approach
save funds, which can be used elsewhere, but it also
releases senior personnel to more complex and skilled
duties.* Therefore, a natural filtering process occurs
within the group.

b.   The Dialog Specialist (D-S)

As the D-S receives search-type requests from the clerk,
she will determine if a search is required, ascertain that
previous printouts are not then available, and proceed to
run searches batching requests by closely related descriptors.
If a printout exists she will alert the clerk to this and
the clerk will fill the request from that point on. Results
of new searches will be filed by descriptor and a printout
copy mailed on to subsequent users by the clerk.

Any question which involves an in-depth analysis outside
of the ERIC file, should be referred to the supervisor-analyst
for service.

The D-S will code the sheet under "generated response"
indicating the descriptors assigned for storage, and code in
her initials. Alternatives for action should be her preroga-
tive as the workload and on-line time may fluctuate. Time
required for each search should also be entered.

An ongoing contact between the D-S and the research analyst
will alert the system to emerging trends in user behavior and
inventory strengths.

---

*See a model for Unit costs related to personnel level and
request frequency in Appendix G.

A Search File

When Dialog is not on-line, the D-S should be preparing a file of search printouts catalogued by descriptor. This search-generated-file can eventually be used as "prepared" material by the clerk in responding to users. The clerk can maintain this file; the D-S should spot-check its organization and update its contents related to frequency of each printouts' use.

c. Supervisor-Analyst

The S-A is the supervisor of this section. Her responsibilities are primarily related to maintaining a wholesome atmosphere in which the personnel perform services and process materials effectively.

Training inexperienced personnel to operate at the highest level of their competency is a major task. It will fall to her to arrange training workshops when new equipment is introduced.

Training Network and non-CEC staff to utilize the Dialog system will also be coordinated by her under the supervision of her supervisor, head of the Information Processing Unit.

Spot-checking responses to users will be an essential component in quality control. Inventory results should be brought to her for final determinations.

An ongoing contact with her staff alerts her to incipient problems that she then may resolve easily.

She will receive from the D-S those requests which require:

1) Specialized searches, referrals, or staff contact
2) Liaison by personal contact with high-level users who require sophisticated responses.

The S-A should exercise her own discretion, supported by the Unit head, in modifying the internal interaction of the section as experience indicates.

A model describing the path of a request is provided on the following page. Experience with the computer, the data file, present personnel and the nature of the requests will determine what new configurations are justified.

2. Duties and Responsibilities of Data Processing

The keypuncher assigned by Data Processing to this operation will receive the coded sheets from the clerk-analyst and proceed to punch **all** of the information provided.

She will store and maintain these records and retrieve them upon request of the research analyst and/or the S-A.

Providing printouts

Printouts will be provided by data processing for the following purposes:

    a. Analysis of patterns by the research analyst
    b. Periodic inventory count by the Supervisor-analyst
    c. Inter-departmental conferences on the nature of the data being accumulated.

3. The Research Analyst-(R-A)

Collecting data is a rather useless endeavor without some purposeful motives. This operation presumes that the following organizational factors exist:
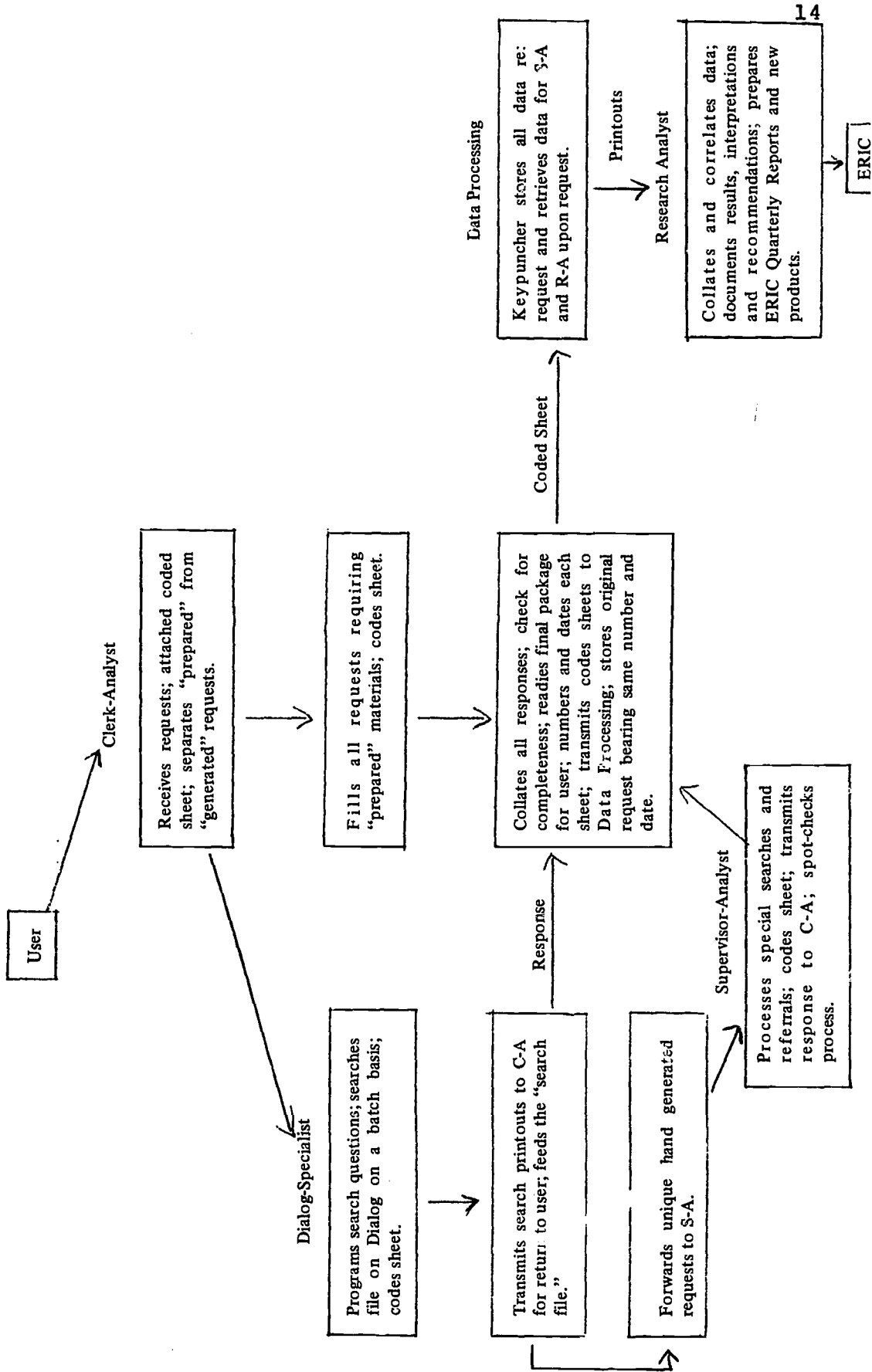
    a system open to change
    a competent person is available to fully utilize the data colllected.

The system must early-on establish and communicate a viable structure for interaction between the R-A, data processing, and the service personnel.

Duties and Responsibilities

Analysis of the data collected should be conducted by another analyst outside of the Service Section. In this manner, the necessary degree of objectivity can be achieved. A research analyst, skilled in interpreting the data and familiar with the request-response system, should be available for the following tasks:

Path of an Information Request: Receipt, Interpretation, Fulfillment, Analysis, and Dissemination

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User

Clerk-Analyst

Receives requests; attached coded sheet; separates "prepared" from "generated" requests.

Fills all requests requiring "prepared" materials; codes sheet.

Collates all responses; check for completeness; readies final package for user; numbers and dates each sheet; transmits codes sheets to Data Processing; stores original request bearing same number and date.

Dialog-Specialist

Programs search questions; searches file on Dialog on a batch basis; codes sheet.

Transmits search printouts to C-A for return to user; feeds the "search file."

Forwards unique hand generated requests to S-A.

Supervisor-Analyst

Processes special searches and referrals; codes sheet; transmits response to C-A; spot-checks process.

Response

Coded Sheet

Data Processing

Keypuncher stores all data re: request and retrieves data for S-A and R-A upon request.

Printouts

Research Analyst

Collates and correlates data; documents results, interpretations and recommendations; prepares ERIC Quarterly Reports and new products.

ERIC

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a. Periodic recall of inventory data from the file
    to provide to the S-A for "materials stock status."

b. Periodic recall (advisably once a week) of the
    data and correlated information from the file
    to determine trends. Visual or graphic
    computer-generated displays are most helpful
    in studying patterns of user and request data.
    The large sample available provides a natural
    bank of information from which to justifiably
    plan procedures, products and personnel dis-
    tribution. In addition, the unit cost for
    processing requests can be quickly computed
    and periodically reviewed.

c. Presentation of correlated findings and results
    related to BEH priorities, Network functions,
    ERIC projects, CEC programs in order to re-
    commend support tactics and products.

d. Presentation of these results with recommenda-
    tions for action to the Director of the Information
    Center, and to advise the CEC Products Committee
    about new or changing needs while the data is
    still fresh. It is desirable that she be
    permanently assigned to this committee as advisor
    and consultant, so that the committee can be
    apprised of field response to CEC products.

e. To prepare, in advisement with the S-A, the ERIC
    Quarterly Report, Section D, from the data
    retreived. This, of course, frees the S-A
    who currently is responsible for this assignment.

f. To monitor other information trends and activities,
    to establish a liaison with other agencies; and
    to provide that information to the Center Director
    opening new channels for interaction and exchange. She
    would inform CEC about the tools and practices
    of other agents in an effort to serve the special
    education community most comprehensively.

D. Specific Techniques for Facilitating the Plan

Any systems approach worth "its salt" is predicated upon clearly envisioned objectives. Then the approach requires some quantifiable proof that the modus operandi creates an effective output. Such legitimate questions as -- Does the quantity of output justify the quantity and scope of input? Is that provable? Are alternative practices available that might optimize the size of the quotient which results from this practice:

$$\frac{(\text{output})}{(\text{input})} = \text{Results}$$

Alternatives should be considered periodically to compensate and adjust course "as we go."

This paper has attempted to describe the quantitative and qualitative benefits of a plan to systemize necessary operations. An ongoing evaluation of the plan in operation may well change its structure and character. However, the ability of the organization to modify that plan in accordance with the data collected will be testimony to its strength.

There are several techniques which, the author believes, will facilitate ease of implementation and broaden benefits to the entire organization:

a. Openness between interactants and system flexibility should be deliberately maintained* and guaranteed.

b. Documentation

A running account of the genesis and evolution of this system should be the responsibility of the staff (e.g. the research analyst). A well documented project permits:

1. Ready reference by the planners to the process that is unfolding,

2. The Center to share the process with other information agencies as they develop and grow,

3. BEH and NCEC to understand Center goals, activities, and the state-of-information art. This document will offer a permanent archival bank of information at "budget-time," etc. The Center might well offer a periodic State-of-the-Information-Need to BEH for their awareness.

*"Specific Techniques for Implementing a Record-Keeping System", C. Fineblum, CEC, 4/71

c. <u>Bibliographies as Outgrowths of the "Search File"</u>

Those printouts that have been generated by the Dialog
Specialist, descriptorized and shelved, and available for rapid
retrieval can be used for the generation of new bibliographies.
The research analyst, recalling from BIRS the frequency of
requests in specific areas (by **descriptor**), can produce a list
of the most favored topics. This list provides candidates for
the next bibliography series--all rather effortlessly.

In this manner, time-consuming search efforts are converted
to time-saving "prepared" responses. Q.E.D. Costs drop.

As Archimedes said when he wielded his fulcrum -- "give me a long enough lever and a place to pivot, and I will lift the world."

We, at the CFC Information Center, do not intend to lift the world. However, we do have a fulcrum -- a tool with which to perform work, activate resources, and lighten the load. Today, in our complex world, the load is not so physical or simple as a heavy cart sunk in the mud. Our load is the massive responsibility of providing services and products to users whom we cannot see or touch and whom, frequently, we cannot even understand. Our load is also the immense financial cost attendant to those services.

If process and tools, such as systems planning and Dialog computers, can reduce the weight that impedes progress, the road will surely become more navigatable.

Appendix A

Materials List

STANDARD LETTERS

101 A. CEC Information Center Hanger
102 B. We Hope
103 C. Checklist

104 D. Careers

105 E. IMC-TEM letter

106 F. Job letter
107 G. Teachers Aide letter

108 I. Parent Letter

ENCLOSURES

301 Selected Materials
302 Selected Materials
303 ERIC Can Help, ECEA flyer,
    ERIC ExCerpt, CEC Publica-
    tions List, CIJE flyer
304 Careers in Special Education
    Agencies Guide, Scholarship
    booklet
305 IMC reprint, ERIC Can Help,
    ECEA flyer, CEC Publication
    List, TEC flyer
306 Recruitment bulletin
307 Blessing reprint, Careers in
    Education,
308 Helping Bibliography, Agencies.
    Guide

REPRINT BIBLIOGRAPHIES

201 Emotionally Disturbed Children
202 Children with Learning Disabilities
203 Administration of Special Education
204 Aurally Handicapped Children
205 Behavior Modification
206 Culturally Disadvantaged Children
207 Gifted and Creative Children
208 Mentally Handicapped Children
209 Physically Handicapped, Homebound and Hospitalized Children
210 Speech Handicapped Children
211 Teacher Preparation and School Accreditation

MISCELLANEOUS MATERIALS

401 Sample EC and order form
402 Sample TEC and order form
403 Sample ETMR and order form
404 The Six Hour Retarded Child
405 These Too, Must Be Equal - Employment of the Mentally Retarded
406 ERIC - Your Guide to Current Educational Information
407 MR' 70
408 Special Education - What It Means, What It Offers
409 Research in Education Cumulative Index Brochure
410 Information Center for Handicapped Children brochure
411 The Problem of Mental Retardation
412 CEC promotional brochure
413 CEC - Divisions brochure
414 CEC in Canada brochure
415 Personnel Recruitment brochure

EXCEPTIONAL CHILDREN BIBLIOGRAPHY SERIES

608 Behavior Modification
609 Gifted and Creative Programs
610 Administration
611 Curriculum Guides
612 Physical Education and Recreation
613 Reading Methods and Problems
614 Multiply Handicapped
615 Learning Disabilities - Programs
616 Learning Disabilities - Research
617 Emotionally Disturbed - Programs
618 Emotionally D sturbed - Research
619 Visually Handicapped - Programs
620 Visually Handicapped - Research
621 Educable Mentally Handicapped - Research
622 Educable Mentally Handicapped - Programs
623 Regular Class Placement/Special Classes
639 Gifted and Creativity Research
641 Trainable Mentally Handicapped - Research
624 Aurally Handicapped - Programs
625 Aurally Handicapped - Research
630 Perceptual-Motor Development
633 Vocational Training
638 Directory of Services and Facilities
642 Juvenile Delinquency
643 Crebal Palsy

Appendix **B**

A Profile of the Total Number of Information Requests Received

by the Center on a Quarterly Basis Between

January 1, 1971 and June 30, 1971

Requests Received Quarterly Between January 1, 1970 and June 30, 1971

Number of Requests Received

3,000
2,500
2,000
1,500
1,000
500

N= 1,079 — 1st Q,'70
N= 1,218 — 2nd Q,'70
N= 1,433 — 3rd Q,'70
N= 1,636 — 4th Q,'70
N= 2,176 — 1st Q,'71
N= 2,300* — 2nd Q,'71
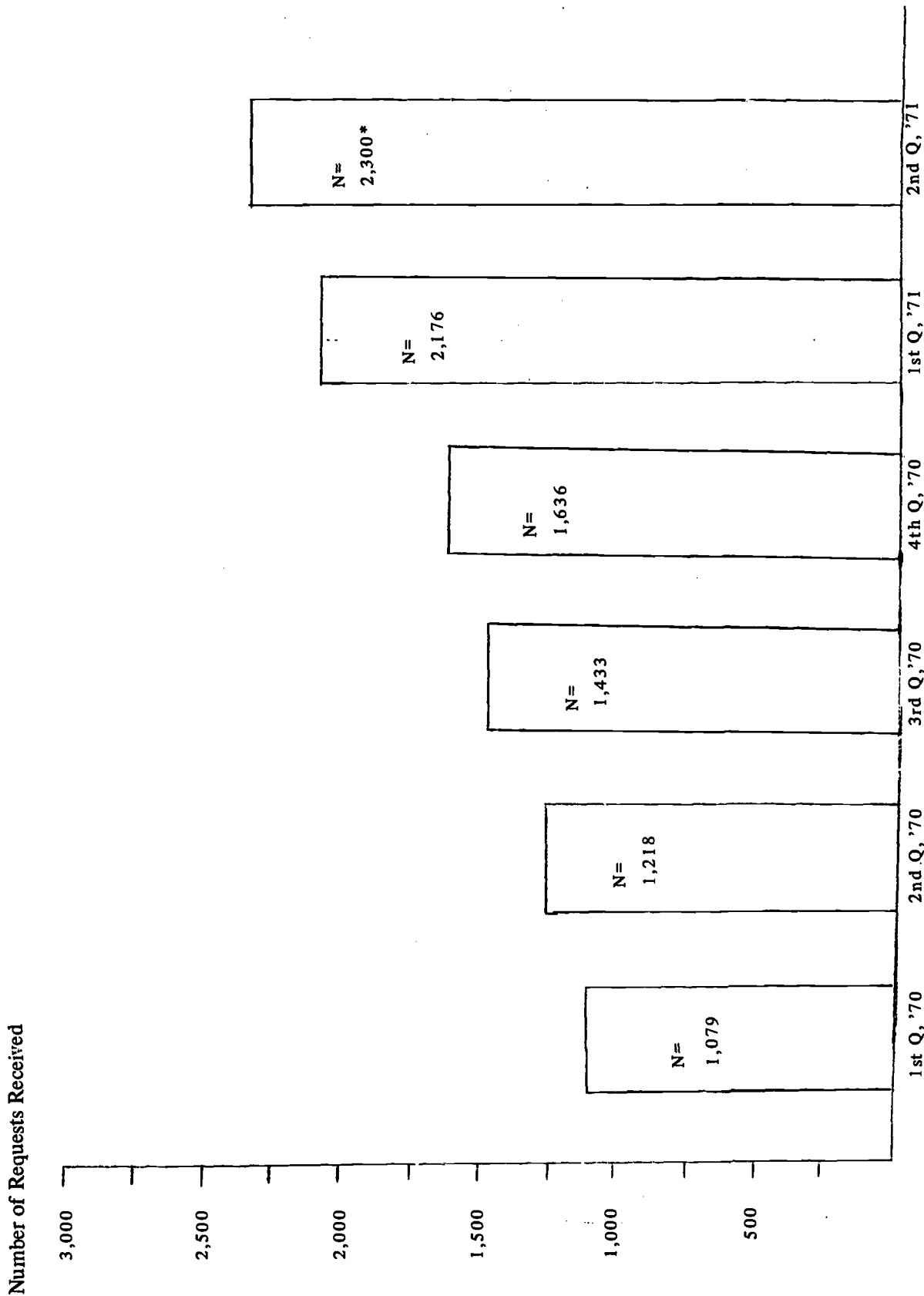
*This is an approximate number calculated from the known figure of 757 requests for Mav '71.

Appendix C

Sample Tabulation Sheets

1. Data Re: User and request (one entry/contact)

2. Response Formats (each response mode entered once)
    Entries were made in user code

3. Distribution of Queries posed for each request area
    (one entry/query)   Many requests contained multiple queries.

Requests Received During October, 1970.

USERS / PRIORITY AREAS — handwritten tally table

Response Format & Processes

Request Area	"Prepared Materials"				Literature Search	Analyst "Generated" Services		
	Brochures	Pamphlets	Biblios	Xeroxed Abstracts		Referrals	Negotiated Q	Individualized
Ear. Child								
Diagn. Mat.								
Curric.								
Leg/Fund								
Voc. Ed.								
Work St.								
Shelt. Work								
Leg/Fund								
Gen.								
Admin. Proc.								
Place/Env.								
Programs								
Leg/Fund								
Personnel Train.								
Non-Teach								
Prog & Mat.								
Supp. Prog.								
Teacher Exch								
IM & M								
Guides								
Films								
Materials								
Methods								
Leg/Fund								
Att. Mod								
Jobs								
Careers								
Nature & Needs								
Intrinsic								
Intervention								
Publications								
Parent Liaison								
Agencies								
Statistics								
Publications								
CEC/ERIC Org.								
CEC/ERIC Prod.								
Info. on Ex. Ch								

ix

Number of Queries Posed Within Request Areas   Oct '70

EARLY CHILDHOOD   VOC'AT EDUC   Administration   Personnel Training   Instruct. Materials   Child Att't.   Behav. Nature & Needs   Parent Area   Publications

No. of Queries/Request

| 2 | 3 | 4-6 | 6-7 | 8 | 9 | 10 | 11-13 | 14-16 | 17-20 | 21-30 | over 31 | Total |

Total Q'ss/area

* all the Bibs were requested
o all queries were in this one area

30

Appendix D

Sample Coding Sheet

and

List of Descriptors Derived from the Code Used

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CODING SHEET FOR REQUESTS AND RESPONSES

Date Arrived _____   State _____

_____   Date Returned _____   (Circle at least one in each category)

I		II	III	IV		V
S	M	Request Code	User Code	Response Mode "Prepared"	"Generated"	Disability Areas

II Request Code

2	EC_1 EC_2 EC_3
3	VE_1 VE_2 VE_3 VE_4
4	AP_1 AP_2 AP_3 AP_4
5	PT_1 PT_2 PT_3 PT_4
6	IH_1 IH_2 IH_3 IH_4
7	AM
8	BM
9	J Car
10	R_1 N_2 N_3 Ag
11-13	PL
14-16	Stat ••
17-20	Pub_1 Pub_2 Pub_3
over	Other _____

III User Code

PT_1 PS_1 PC_1 C SW_1 D_1 Ad_1 R_1 Par St_1 Un
PT_2 PS_2 PC_2 P_1 SW_2 D_2 Ad_2 R_2 St_2
PT_3 PS_3 PC_3 P_2 SW_3 D_3 Ad_3 R_3 St_3
PT_4 PS_4 D_4 Ad_4
PT_5 PS_5 Ad_5
PT_6 PS_6 Ad_6
PT_7
PT_8
PT_9
PT_{10}
PT_{11}

Other _____

IV Response Mode "Prepared"

101	201	301	401	501	601
102	202	302	402	502	602
103	203	303	403	503	603
104	204	304	404	504	604
105	205	305	405	505	605
106	206	306	406	506	606
107	207	307	407	507	607
108	208	308	408	508	608
109	209	309	409	509	609
110	210	310	410	510	610
111	211	311	411	511	611
112	212	312	412	512	612
113	213	313	413	513	613
114	214	314	414	514	614
115	215	315	415	515	615

Time _____ By _____

"Generated"

Dialog Search Descriptors
_____
_____
_____
_____

Time _____ By _____
Referral _____
_____
Time _____ By _____
Individualized
_____
_____
Time _____ By _____

V Disability Areas

ED
MR
EMR
TMR
NI
G
VI
LD
S & HI
Disadv.
PH
Other _____
_____

The following coding sheet is an example of the simple form that should be filled out by each analyst handling the request. Attached to the original request and all accumulating responses, it should accompany the request through processing and be separated from it only when the request has been completely filled and the package is transmitted to the user. At that time, the sheet is relinquished to the keypuncher by the clerk-analyst.

The code assigned must remain flexible and reflect the experience with user and request types. Periodically, the research analyst may wish to revise the code as the "Other" category so indicates. The assigned codes are not to be construed as rigid, but simply as a launching device for recording major dimensions of the process.

The clerk will select the appropriate code for the first four columns (single or multiple number of queries made, the nature of the request, the identity of the user, and the disabilities area described in the request). She will also circle the prepared products that she selects for return as well as her initials and time taken for response. The numbering system has been designed to indicate the type of product sent, e.g. CEC reprints are in 200 series, bibliographies are in the 600 series, etc. The user's state will be entered as a 2 letter abbreviation later to be used for research by SEIMC offices.

The remaining portions of the sheet will be filled out by either or both the Dialog Specialist and the Supervisor under "generated" responses. It is anticipated that the time utilized for these types of responses will be longer, but that their frequency will be lower than those inferring "prepared" responses. This section will provide the ingredients for the "Search File" as well as for the data on processing time and skills required.

The pages following the coded sheet provide a listing of those categories which emerged from the early analyses of requests. Their descriptor equivalents are also provided in terms that are concordant to ECEA* terms. In this way, the descriptor assigned can later become the index for the data base in the "Search File." These terms will periodically be deleted and modified as the request panorama changes.

---

* Exceptional Child Education Abstracts -- CEC, Arlington, Virginia

ECEA Thesaural Equivalencies for Request File Descriptors

Users

Code	Thesaural Equivalency
Teachers	
PT_1	Special Education Teachers
PT_2	Emotionally Disturbed
PT_3	Educable Mentally Handicapped
PT_4	Trainable Mentally Handicapped
PT_5	Neurologically Handicapped
PT_6	Gifted
PT_7	Visually Handicapped
PT_8	Learning Disabilities
PT_9	Speech Handicapped
PT_{10}	Cultural Disadvantagement
PT_{11}	Hard of Hearing
PT_{12}	Teachers
PT_{13}	Teacher Aides
Specialists	
PS_1	Reading
PS_2	Speech Therapists (no Hearing Therapists)
PS_3	Art
PS_4	Music Therapy
PS_5	Physical Education
PS_6	Instructional Materials
PS_7	Resource Teachers
PS_8	Physical Therapists
College	
PC_1	(Special Education Teachers and Universities)
PC_2	(Teachers and Universities)
PC_3	(Personnel and Universities)
PC_4	(Research and Development Centers and Universities)
Counselors	
C_1	(Public Schools and Councelors)
C_2	Counseling Centers
Psychologists	
P_1	School Psychologists
P_2	(Clinics and Psychology)
Social Workers	
SW_1	School Social Workers
SW_2	(Clinics and Social Work)
SW_3	(Agencies and Social Work)
Disseminationists	
D_1	(Public Schools and Libraries)
D_2	(Universities and Libraries)
D_3	Research and Development Centers and Instructional Materials Centers
D_4	Others

Users

Code	Thesaural Equivalency
Administrators	
Ad_1	(Supervisors and Exceptional Child Education)
Ad_2	(Superintendents and Exceptional Child Education)
Ad_3	Supervisors
Ad_4	Superintendents
Ad_5	(Consultation Programs and Supervisors)
Ad_6	(Educational Planning and Agencies)
Ad_7	(Business Subjects and Agencies)
Ad_8	(Government and Supervisors)
Researchers	
R_1	(Research and Personnel and Exceptional Child Education)
R_2	(Research and Personnel)
R_3	Others
Parent	
Par_1	Parents
Par_2	Volunteers
Students	
ST_1	(High School and Student (Behavior))
ST_2	Undergraduate Study and Exceptional Child Education and Student
ST_3	(Undergraduate Study and Student)
ST_4	(Graduate Study and Exceptional Child Education and Student)
ST_5	(Graduate Study and Student)
Unidentified	
Un	(Identification and Negative

ECEA Thesaural Equivalencies

Code	Thesaural Equivalency
EC	Early Childhood
EC_1	(Early Childhood and Diagnostic Tests)
EC_2	(Early Childhood and Curriculum)
EC_3	Early Childhood and Teaching Methods)
EC_4	Early Childhood

VE	Vocational Education
VE_1	Work Study Programs
VE_2	Sheltered Workshops
VE_3	(Legislation and Vocational Education)
VE_4	Vocational Education

AP	Administrative Problems
AP_1	(Grouping and Placement)
AP_2	Environmental Influences
AP_3	Program Design
AP_4	(Legislation and State Legislation and Administrative Problems)

PT	Personnel
PT_1	Teacher Aides
PT_2	(Instructional Media and Programming)
PT_3	(Teacher Education and Private Financial Support)
PT_4	(Teachers and Foreign Legislation)
PT_5	(Teacher Education and Legislation)

IM & M	(Instructional Materials & Teaching Methods)
IM & M_1	Curriculum Guides
IM & M_2	Instructional Materials
IM & M_3	Teaching Methods
IM & M_4	Class Management
IM & M_5	Diagnostic Teaching
IM & M_6	(Media Technology and Films

BM	Behavior Modification
J	Job Placement
Car	Career Planning

Request Categories

Code	
N & N	(Individual Characteristics and Need)
N & N_1	(Etiology and Individual Characteristics
N & N_2	(Intervention and Class Management)
N & N_3	(Information Service and Need and Exceptional Child Education)
N & N_4	(Diagnostic Tests and Exceptional Child Education)

Par L	Parent School Relationship
Ag	(Agencies and Facilities)
Stat	(Statistical Data and Legislation)

Pub	Information Services
Pub_1	(Information Dissemination and CEC/ER
Pub_2	(Library Services and CEC/ERIC)
Pub_3	Library Services and Exceptional Child Education
Pub_4	(Research and Reviews and Publications Exceptional Child Education)
Pub_5	(Rejection and Verbal Communication

Appendix E

The Dialog Terminal Service and Anticipated Tasks

Dialog Terminal Service*

The following tasks have been contracted to Lockheed by CEC for
the installation and operation of the Dialog Terminal Service,
which will render the ECEA information file retrievable on demand.

Task 1: "Conversion of the CEC data base of approximately 2000
         Exceptional Child Abstracts to Dialog format. . . . .
         a. CEC index terms, where appropriate, will reference
             the ERIC Thesaurus for related terms.
         b. Two updates will be provided at an approximate inter-
             val of 3 months during the contract."

Task 2: "Installation of the ERIC/CEC Dialog Terminal
         a. A remote terminal consisting of a CRT device and
             hard copy printer will be installed. . . .
         b. Terminal instruction will be provided by CEC person-
             nel on site."**

Task 3: ERIC/CEC Dialog Terminal Services
         a. "On-line services will be provided 2 hours per work-
             ing day during the contract.
         b. Up to 6000 lines of computer printout of search
             results will be provided on a daily basis.
         c. Courier services will be provided on a daily basis
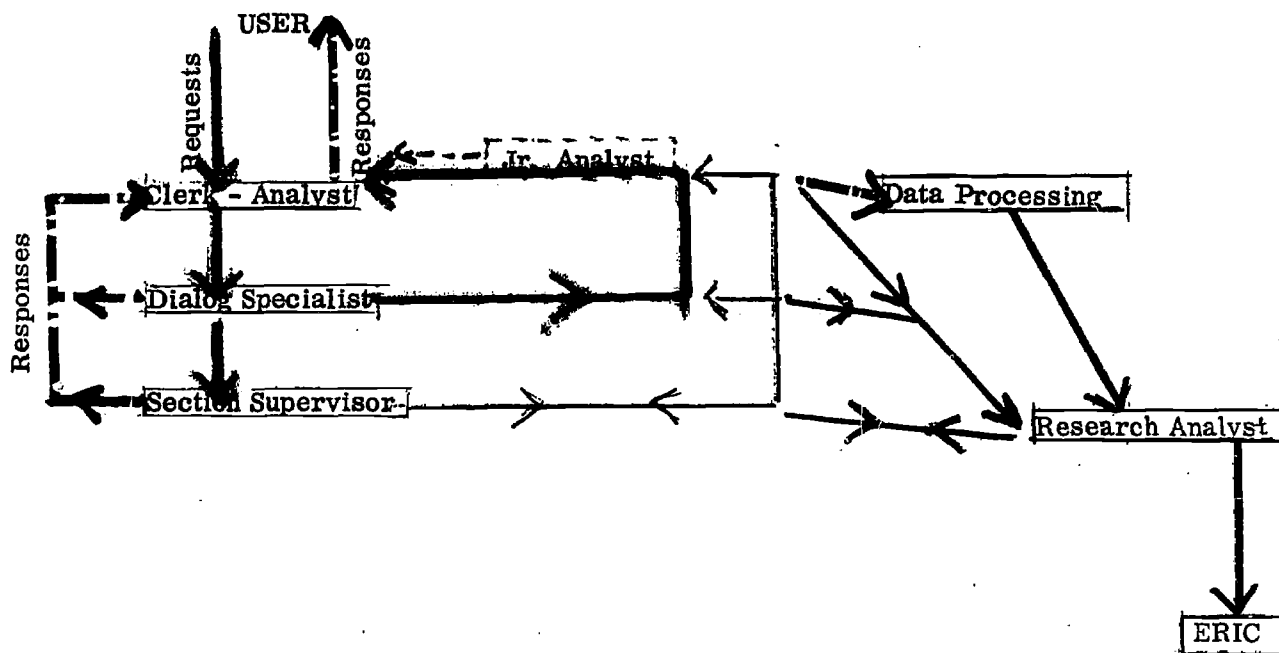   for delivery of search results."

"It is anticipated that this terminal will be operational on or
about July 1, 1971, and that the CEC data base will be available on-
line by August 1, 1971."

Appendix F

A Model for Interaction within the Information

Services Section Re: Request Processing

## Model — Interaction of Information Service Section
Re: Request Processing

———————	Requests in process
▪━━▪━━▪━━▪	Completed responses
———————	Ongoing training, section interchange
— — — — — —	Projected personnel

Appendix G

A Cone Describing the Relationship between the Number of

Requests Handled and the Level of the Processing Personnel

A Cone Describing the Inverse Scale of the Number of Requests Handled

vs.

the Personnel Skills Required

**The Number
of Requests
Handled**

High   **Low**
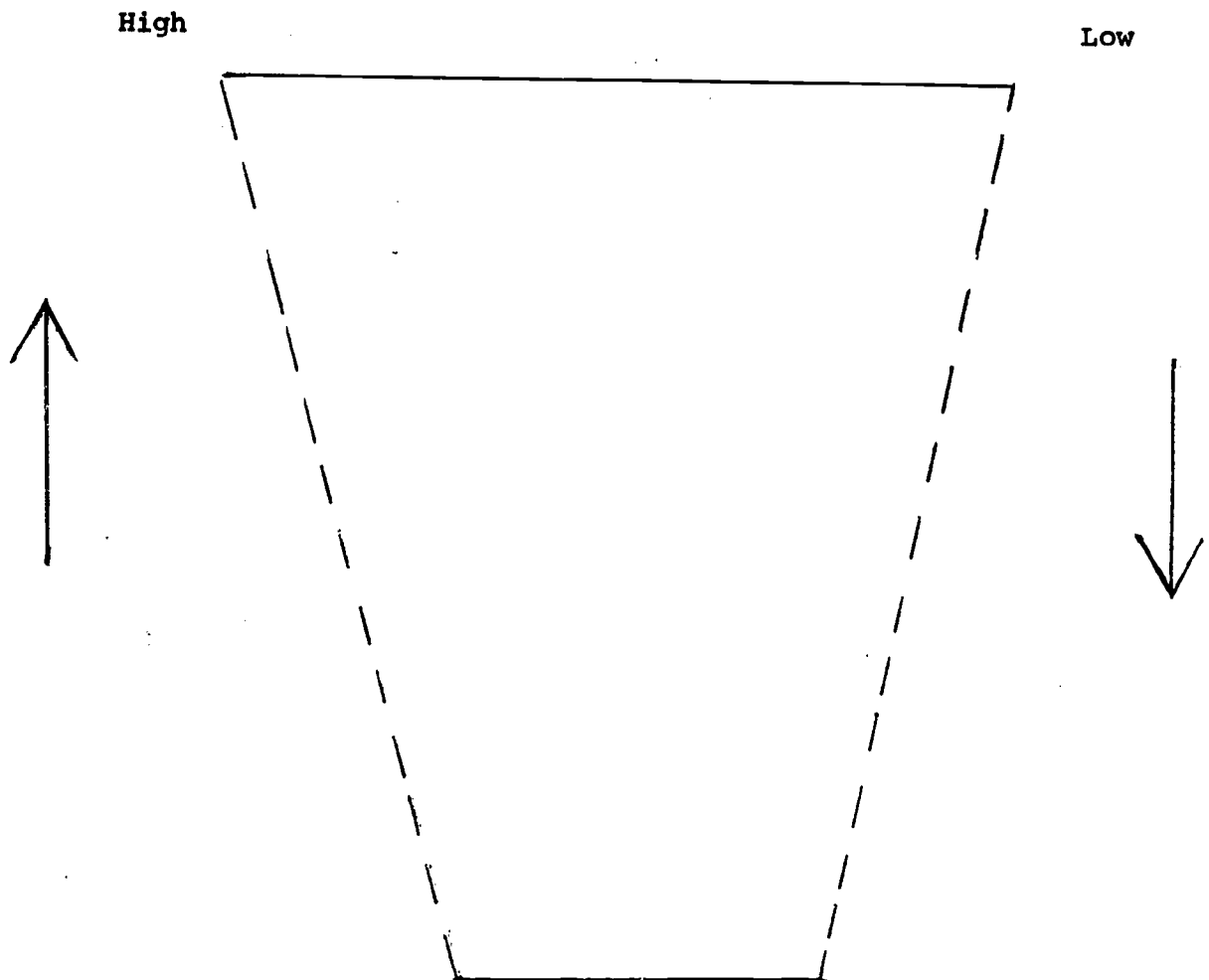
Low   **High**

**Level of
Personnel
Skills and
Salaries**