DOCUMENT RESUME

ED 047 436 EC 031 506

AUTHOR	Jordan, June B., Ed.; McDonald, Phyllis L., Ed.
TITLE	Dimensions: Annual Survey of Exceptional Child Research Activities and Issues - 1970.
INSTITUTION	Council for Exceptional Children, Arlington, Va. Information Center on Exceptional Children.
SPONS AGENCY	Bureau of Education for the Handicapped (DHEW/OE), Washington, D.C.
PUB DATE	71
NOTE	65p.
EDRS PRICE	EDRS Price MF-$0.65 HC-$3.29
DESCRIPTORS	*Educational Trends, *Exceptional Child Research, Interviews, *Research Needs, Research Problems, Research Reviews (Publications), *Surveys
IDENTIFIERS	CEC-ERIC Information Center, Council for Exceptional Children

ABSTRACT

The text is a result of a telephone interview survey conducted by the CEC-ERIC Information Center in which 57 selected leaders in the field of special education were asked to identify current and significant trends, activities, products, issues, and individuals. In summarizing and interpreting responses to the interview questions, articles examine the convergence on key topic areas, response of organizations to problem areas of concern, problems and obstacles in exceptional child research, and current controversies in special education. Additional articles contain reviews of information files and journal literature compiled apart from the survey focusing on computerized information, recent trends in research, and a review of content in basic speech and hearing journals. Introductory articles provide information concerning the products and activities of the Council for Exceptional Children and the CEC-ERIC Information Center. (RD)

ED 047 506

EC 031 506

DIMENSIONS

DIMENSIONS

Annual Survey of

Exceptional Child Research Activities and Issues — 1970

Editors

June B. Jordan

Phyllis L. McDonald

The Council for Exceptional Children, Suite 900
1411 South Jefferson Davis Highway, Arlington, Virginia 22202

Library of Congress Catalog Card Number: 76-153 089

Printed in the United States of America

The work presented or reported herein was performed pursuant to a Grant from the Bureau of Education for the Handicapped, US Office of Education, Department of Health, Education, and Welfare. However, the opinions expressed herein do not necessarily reflect the position of policy of the US Office of Education and no official endorsement by the US Office of Education should be inferred.

Contents

Authors

Raymond S. Cottrell	*is Director, Mid-Atlantic Regional SEIMC, and Associate Professor of Special Education, George Washington University, Washington, D.C.*
Donald K. Erickson	*is Director, CEC Information Center, Arlington, Virginia.*
Vilma T. Falck	*is Associate Professor, Department of Psychology, University of St. Thomas, Houston, Texas.*
William C. Geer	*is Executive Secretary, The Council for Exceptional Children, Arlington, Virginia.*
June B. Jordan	*is Assistant Director, CEC Information Center, Arlington, Virginia.*
Phyllis L. McDonald	*is Program Associate, CEC Information Center, Arlington, Virginia.*
Alexander J. Tymchuk	*is Psychological Examiner, Psychology Department, Clover Bottom Hospital and School, Nashville, Tennessee.*

Copy for this publication was prepared at CEC on an IBM MT/ST Composer Unit. Elaine Barker, Editorial Assistant; Linda Lindsay, MT/ST Operator.

Preface

Dimensions is a unique publication. We decided to write it after completing a most interesting and revealing experience in information analysis product planning.

Last spring, like other ERIC Clearinghouses, the CEC-ERIC Information Center was instructed by the Office of Education to conduct a comprehensive and systematic planning effort to determine appropriate publications and products for grant support in the next budget year. Guidelines suggested that a Clearinghouse identify research trends in its particular field, identify significant research areas to be analyzed, and determine priority research areas for product development.

To ascertain significant research activities and trends in special education, we looked at some of the usual sources for information. Appropriate computerized information files were searched and recent journal literature analyzed. Professional organizations and CEC Divisions were invited to identify topics of significance and concern. However, our most promising endeavor was an attempt to tap into the special education "grapevine." This provided us with a current, dynamic picture of significant research activities and perceived research problems, issues, and trends.

The CEC Information Center staff was fortunate to have Mr. Theodore Melnechuk as a consultant in its grapevining project. Mr. Melnechuk is Director of Communications, Neurosciences Research Program, Massachusetts Institute of Technology. For a number of years, he has successfully employed similar procedures in the neurosciences to reduce the publication lag in current research knowledge. His premise and approach greatly influenced our mode of operation.

Melnechuk reduces the time lag between the completion of a research report and its dissemination through professional journals by identifying and plugging into a research community's inside information grapevine. According to his grapevine model of communication, within a given science is a grapevine of 10 to 20 people who are leaders in that particular field. *The most important knowledge in that field emanates from, or at least passes through, that group of leaders.* Melnechuk contends that this "invisible college" of leaders can provide important, immediate data on where a field is, where it is going, and why.

A telephone interview survey was the mechanism we used to begin tapping into special education's grapevine. With the assistance of an Advisory Committee, a roster of 58 individuals was prepared. The initial proposed list numbered more than twice that many, but time restrictions and staff resources necessitated a more manageable number of interviews. A letter was sent to each person, explaining the purpose of the project and inviting participation through a telephone interview. Only one person declined, and a total of 57 interviews were conducted. With the approval of the participants, telephone conversations were recorded.

The interviewer asked the individual to (a) identify several projects they found interesting and significant and the names of the individuals working on them; (b) describe their own work; (c) identify the

hottest controversy in the field; (d) identify any problems in technology or research methodology holding up research efforts; (e) name a creative maverick in the field; and (f) suggest people the Center should interview with similar questions. Other brief questions were related to his opinions of other works and individuals that had not been mentioned. An interview lasted 20 to 45 minutes.

The results of this survey served as the primary basis for the CEC Center's selection of topic areas for product development in 1971. Additionally, the interviews provided the beginning of a data bank of people and projects for continuous monitoring and "grapevining."

We acknowledge with much appreciation the assitance of our Advisory Committee who reviewed the planning proposal, helped identify individuals for the telephone interviews, and reviewed the project report: Dr. Burton Blatt, Director, Division of Special Education and Rehabilitation, Syracuse University; Dr. Vilma Falck, Associate Professor, Department of Psychology, University of St. Thomas; Dr. Herbert Goldstein, Director, Curriculum Research and Development Center in Mental Retardation, Yeshiva University; Dr. James McCarthy, Professor, Department of Studies in Behavioral Disabilities, University of Wisconsin; Mr. Theodore Melnechuk, Director of Communications, Neurosciences Research Program, Massachusetts Institute of Technology; Dr. Maynard Reynolds, Professor of Educational Psychology, Department of Special Education, University of Minnesota; and Dr. Charles Strother, Director, Child Development and Mental Retardation Center, University of Washington.

Dimensions contains articles summarizing and interpreting responses to the basic telephone interview questions. *Dial G for Grapevine: A Conversation in Exceptional Child Research* discusses the convergence on key topic areas. *Problems in Exceptional Child Research* and *Current Controversies in Special Education* analyze the responses regarding technical obstacles to research and controversial issues. Also included are the reviews of information files and journal literature prepared for the Information Center by Raymond Cottrell, Alexander Tymchuk, and Vilma Falck. The introductory articles by William C. Geer, CEC Executive Secretary, and Donald Erickson, Director of the Information Center, provide appropriate background information about the organizational structure in which this survey took place.

Dimensions is an expression of current activity, interests, needs, and concerns in exceptional child education. It is a multifaceted view of the base for developing publications and media products.

June S. Jordan

Information Dissemination—A CEC Goal

William C. Geer

The Council for Exceptional Children is approaching its Fiftieth Anniversary in 1972. As it moves into its second fifty years, it appears that the Council will continue to be a prime agent in the dissemination of information for the entire field of special education.

The Council's publications are an important means of dispersing information. In addition to the CEC Information Center products, CEC publishes *Exceptional Children,* a general journal for the association, which focuses on research programs, and issues and trends in special education. The monthly periodical, *INSIGHT,* provides legislative and other information useful to administrators in planning programs.

Another journal, *TEACHING Exceptional Children,* contains articles on methods and materials for use in the classroom. *Education and Training of the Mentally Retarded* is a quarterly journal which is the official journal of the CEC Division on Mental Retardation. Its articles relate specifically to the field of mental retardation. The organization also publishes special publications and now offers a list of more than 30 professional publications to the field.

The Council for Exceptional Children has been influential in the development of federal legislation for the education of exceptional children, both handicapped and gifted. The Council serves as a source of information about state and federal programs for the handicapped. These activities are combined in the CEC unit on government relations.

The Council has published one statement on professional standards for educators and is presently planning another study to update this policy statement. To further its purposes, the Council conducts conventions and conferences for educators and other professionals involved in the field. Annual conventions have attracted up to 8,500 persons, and regional conferences have served to stimulate the development of special education in specific areas of the country. In recent years, specialized conferences on effective use of federal legislation, early childhood education, and educational technology have served to promote knowledge in specific areas. The Council constantly is searching to find ways to serve most effectively its 40,000 members and the children they serve.

The CEC Information Center—Progress and Potential

Donald K. Erickson

The decade of the 1960's witnessed a sharp increase in national attention to the needs of exceptional children. Federal support of educational research, research

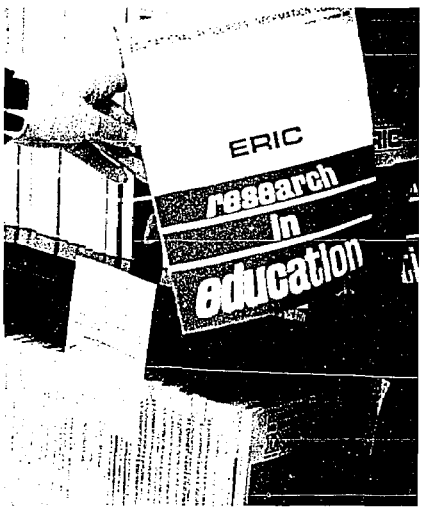
application, training and program development, and the concurrent growth of state, local, and private agency efforts on behalf of exceptional children produced the well known "information explosion" in special education. Thus, the age of the educational information resource center was launched.

As we move into the 1970's, the results of increasing numbers of research projects offer guidance for improved techniques in special education. Therefore, the information center has an essential role in informing special educators about recent findings related to exceptional children.

CEC Information Center Established

To meet the demand for organized accessibility to pertinent information, The Council for Exceptional Children applied for and received a United States Office of Education grant to establish an Information Center on the Education of Exceptional Children. Since inception in 1966, development has been guided by its four original objectives:

1. To serve as a comprehensive information resource on research, instructional materials, methods, curricula, programs, administration, teacher education, and services and facilities for handicapped and gifted children.



2. To participate in the Educational Resources Information Center Network (ERIC) as the Clearinghouse on Exceptional Children by cataloguing, abstracting, and indexing documents for ERIC products such as *Research in Education* (RIE) and *Current Index to Journals in Education* (CIJE).
3. To participate in the Special Education IMC/RMC Network, functioning as a central depository for information on professional and instructional materials and providing a link between the ERIC and IMC/RMC Networks.
4. To engage in the development of print and nonprint products designed to analyze and interpret research findings to various practitioners.

Activities of the Information Center during its first three years of existence revolved primarily around hiring staff, defining and developing a data base, adopting a retrieval system, contributing to the ERIC publications, and developing several information dissemination and analysis products. In January 1970, organizational changes were made which resulted in the establishment of three major administrative units in the Information Center. A brief description of each unit will outline the present and projected program directions of the Center.

Information Processing Unit. Under the direction of Mr. Carl Oldsen, this unit:

1. Acquires, abstracts, indexes, and prepares for computer storage and retrieval approximately 4,000 documents per year. All acquisitions are reported in the quarterly Information Center publication, *Exceptional Child Education Abstracts* (ECEA), which is available by subscription. Each month, selected documents are processed into the ERIC publications.
2. Answers information requests. Over 600 requests from teachers, administrators, parents, students, researchers, and other interested parties are processed each month. A concerted effort is made to provide appropriate information which may be in the form of computer searches, article reprints, newsletters, brochures, or bibliographies. Since many requests are similar, special topic bibliographies have been prepared and are provided on a complimentary basis. Currently there are about 30 topics covered in the *Exceptional Children Bibliography Series.*
3. Maintains a comprehensive library on the education of exceptional children which includes all processed documents, monthly and quarterly issues of 125 journals and 200 newsletters, the complete ERIC michrofiche file, products of the ERIC Clearinghouses, IMC's, RMC'S, and many reference documents. Although there are no circulation operations, the library facility is open to individuals wishing to visit the Center and use the collection.

Information Products Unit. Directed by Dr. June Jordan, this unit was created to develop information summaries, reviews, and other analysis products primarily for the special education community. To accomplish this goal several functions have been instituted. The unit:

1. Constantly monitors current research priorities, trends, issues, projects, and practices through a "grapevine" method of person to person communication with the research community; and analyzes research literature, colloquia, symposia and convention content, and related information files.
2. Develops state of the art and review products on targeted topic areas, as well as on the overall field in order to identify what is known, what is not known, and what needs to be known.
3. Prepares and disseminates print products on targeted topics in a variety of formats – research reviews, monographs, journal articles and columns, "occasional papers," newsletters, and brochures.
4. Prepares targeted nonprint products for training and informational purposes.

Information Utilization Unit. The goal of this unit, directed by Dr. Teresa Lawrence, is to determine, develop, and deliver information that has practical implication for classroom practice. These goals are achieved through:

1. *TEACHING Exceptional Children* (TEC), a quarterly journal designed to implement the primary goal of the unit. *TEC* is a joint product of the Information Center and the Special Education IMC/RMC Network.
2. A market analysis survey of special education practitioner needs which is under way, and is designed to have implications for information product and instructional materials development.

IMC/RMC Network Affiliation

Effective delivery of information to the field from a single national center poses logistical problems which would be discouraging if it were not for the Information Center's participation in the Special Education IMC/RMC Network. The existence of regional, state, and local Special Education IMC's (SEIMC's) provides dissemination outlets in the field. More important, the SEIMC's have continual, face to face contact with teachers, supervisors, administrators, university personnel, and other practitioners. Affiliation with the SEIMC's allows the Information Center to go beyond the traditional dissemination of information, and aids in the diffusion of more effective educational practice through preservice and inservice training activities, regular followup with practitioners, and constant feedback on needs in the field. Expansion of the Network concept to include additional units will soon lead to an even more complete and practical dissemination/diffusion communication system.

Information Center Services

Special education practitioners who utilize the services of the Information Center keep abreast with the latest developments in the education of exceptional children. They stay in the know through:

ERIC Excerpt–announcements of new products and publications in related fields of education and new services of ERIC and the IMC Network.

Research in Education–a monthly summary of research and resource documents and newly funded research projects.

Current Index to Journals in Education–monthly index of articles in over 200 journals relevant to special education, and additions to the ERIC document collection.

Exceptional Child Education Abstracts–a quarterly which abstracts literature pertinent to the handicapped and the gifted.

TEACHING Exceptional Children–a quarterly teaching supplement which discusses methods and materials for the special education classroom.

Information Services unit of the Center which monthly answers hundreds of questions by sending out packets of selected bibliographies, journal reprints, selected abstracts, and guides to other educational agencies.

Registration with the regional centers of the Special Education IMC Network which offer consultation services, inservice training meetings, and information on educational methods and media.

A Look at the Future

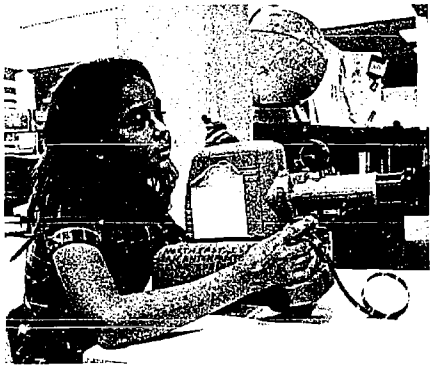
Continual growth of the Information Center seems inevitable, due to widespread acceptance of and demand for information services and products. Several Center priorities can be enunciated which are already being implemented.

1. Systematic, ongoing assessment of the information needs of a wide variety of users to guide all other Center activities.
2. Expansion of the data base at a rate which allows the Center to be current with the generation of knowledge. Information on instructional materials and foreign literature will be significantly increased.
3. Development of print and nonprint information products based on the assessment of activities mentioned above. Products will be developed by staff and by commissioned specialists in the field.
4. Increased attention to personalizing responses to information requests. New computer operations will be developed to support this activity.
5. Active planning and participation with the Bureau of Education for the Handicapped (BEH) and the Special Education IMC/RMC Network for the development of a more comprehensive communication system in special education.

With the combined efforts of the CEC Information Center, the Network, BEH, professors, teachers, administrators, researchers, and communication and computer specialists, success in special education is not far off. The usual twenty year lag between discovery and implementation will be reduced to a matter of months. Exceptional children living in the 1970's will not be educated by the discoveries of the 1940's and 1950's, but by those of the 1970's. Vive la difference!

Dial G for Grapevine: A Conversation in Exceptional Child Research

June B. Jordan



Each field of knowledge can be thought of as a pyramid. At the top or peak of the pyramid, one will find 10 to 20 leaders in the field. All new knowledge in the field either emanates from or passes among them. These people at the top of the pyramid do not depend on printed pages of professional journals to stay on top of things but develop their own internal grapevine system of communication. By tapping into this grapevine, one can get immediate information on where a field is, where it is going, and why.

This description of a communication process is the view of Mr. Theodore Melnechuk, Director of Communications, Neurosciences Research Program, Massachusetts Institute of Technology. Mr. Melnechuk was a member of the Project SPECS Task Force and serves on an advisory committee to the CEC-ERIC Information Center.

Last spring, all ERIC Clearinghouses, including the CEC Information Center, were instructed within the next 90 days to survey their respective fields, identify current, significant bodies of research knowledge, and on that basis present a priority program for the development of information publications and products. The special education grapevine was the source to tap. The telephone was the media to get the message.

The first step was to select a representative core of key researchers in special education. With the assistance of an advisory committee, 58 individuals were identified. One did not participate, and 57 telephone interviews were conducted and recorded. A list of those interviewed is on page 16.

The interviewer asked the individuals to:

1. Identify several projects they found interesting and significant and the names of the individuals working on them.
2. Describe their own work.
3. Identify the hottest controversy in the field.
4. Identify any problems in technology or research methodology holding up research efforts.
5. Name a creative maverick.

Other brief questions were related to his opinions of other works and individuals that had been mentioned and other people who should be called. An interview lasted 20 to 45 minutes.

Responses to the first two questions identified the current, significant areas of knowledge for product development. Although a number and variety of research efforts were named, there was a convergence on several major topic areas.

Projects and problems which were identified grouped under the following topic categories:

1. Behavior modification.
2. Early childhood.
3. Strategies in special education and related issues.
4. Innovations in personnel training.

5. Curriculum development in mental retardation.
6. Pupil characteristics, methods, and materials.
7. Speech, language, and communication disorders.

The telephone interview approach was a most satisfactory procedure. It was fast, efficient, economic, and provided a very human and personal kind of response. In addition, there was an opportunity for interaction and clarification of statements.

The following discussion of the convergence on priority areas contains a selection of verbatim responses from the interviews.

Behavior Modification

Studies in behavior modification, reinforcement, precision teaching, contingency management, etc., received the greatest support. There were a total of 37 citations; however, 10 of these supported the behavior area in general rather than identifying any one specific project. The works of Hewett, Lindsley, Haring, and Schiefelbusch were frequently mentioned. It is also interesting that in response to the creative maverick question, the two individuals most frequently cited are leading researchers in this area. Also a substantial number of others identified as creative mavericks are known for their contributions in the behavior modification area.

Some of the verbatim responses illustrate most clearly the interest of the research community in this particular area of exploration.

Well, I think there are classes of research that I find interesting, rather than particular studies. I think the whole range of studies in the area of behavioral objectives and behavior modification have great promise. Here, you're investigating how you set up a specific short range goal, how you give systematic rewards to the youngster, and then be able to see whether you have, in fact, modified the behavior which you wanted to modify . . . . We've done research studies on the emotionally disturbed, learning disability kids, and on mentally retarded youngsters using the same kind of theme. I don't think any one of these studies is worth singling out, but I think the whole cluster of studies put together have shown that we've got some effective tools for modifying the behavior of children, making them more ready for learning than we have in the past – a very important tool for teachers. I'm very pleased with that group of studies.

You're talking to somebody here that got sold on the neobehaviorist models. You can dig that out almost anyplace—Bricker, Eric Haughton, Kunzelmann, University of Washington. You know, the whole neobehaviorist society, I think, is on target for what's good programing for individualization of instruction and particularly for the handicapped.

One rather general movement, and that is the movement toward precision teaching and data oriented teaching, prescriptive teaching, diagnostic teaching, is a kind of generalized movement that I think is catching on.

Some of the work on the development of shaping methods and particularly behavior modification in children with special learning disabilities is of real interest. And here, some of the work of Bijou and of Sidman, I think, is very interesting.

I would guess that for me the number one area outside my own area is generally in the ballpark of behavioral analysis and, I think, specifically some of the work by Eric Haughton and Ogden Lindsley on recording, charting, and intervention with specific, pinpointed behaviors.

In so far as the human operant conditioning studies are concerned, I've not been as much in touch with this man as I was a few years ago when we were together at Boston, but I have been following his work in literature--and Ogden Lindsley, University of Kansas, is really just a first rate guy who is developing models to prepare teachers, to modify behavior of teachers, to modify the behavior of children, using the human operant conditioning procedures.

One major area is the continued exploration of finding the real practicality and usefulness of the behavioral orientation in special education. I think we are probably into exploration of this for about ten years at this point. I don't really think we have gotten the evidence to know if behavior modification and learning theory and reinforcement principles, etc., are really going to serve us well in terms of a general field rather than a specific laboratory kind of oriented area. This work is continuing, and I think that we are getting closer to some perspective that will help us actually to understand, if indeed this approach is going to do all that many people hoped it would in the early 60's. And I am thinking of the work of Norris Haring, at the University of Washington; Ogden Lindsley and Montrose Wolf, Donald Baer, at the University of Kansas--probably two major centers where this sort of exploration continues. And I think the work of Gerald Patterson, University of Oregon, is also particularly important in the sort of

social learning area bringing parents and the families, etc., into a total program.

One . . . is the work of Dr. Frank Hewett and Dr. Frank Taylor at Santa Monica, California and UCLA, which deals with what they have rather popularly called the engineered classroom, but deals with the issue of operant conditioning in terms of very broad behavior and learning models. This, from observation on my part, appears to have a tremendous amount of potential value and I personally think ought to be extended very markedly, tried out in different kinds of models. He's working basically with children they call educationally handicapped. Many of these are perceptually handicapped children.

The second area where I see, the second bit of research that I see as being very hopeful is also in the same general area of operant conditioning and this is going on under Dr. Norris Haring at the Experimental Education Unit at the University of Washington in Seattle. This is much more detailed in terms of assessing the specific behavior of the child, much more in depth than the Hewett approach, and is much more controlled so far as laboratory controls are concerned. He, too, is working with the group of youngsters that are emotionally disturbed, socially disturbed children as well as perceptually handicapped. I think that these two programs are perhaps the strongest that I've seen in the United States (I haven't seen them all, obviously), certainly the strongest ones going at the present time and the ones that have the greatest amount of potential in this area.

Some of the work that Baer and the others like Lindsley are doing at the University of Kansas in the area of behavior modification, I think is very important, certainly close to some of the things we are interested in here.

. . . We are very much interested in Frank Hewett's work at UCLA--work on the engineered classroom . . . .

I feel of great interest now to the area of special education is the specific management of classroom behavior and there are several interesting projects going on stressing the use of precision teaching; of classroom contingency management; of continuous measurement in the classroom for the assessment of progress of learning and for the developments of more affective instructional programs. These I believe to be the major areas of activity at the present time where important findings are forthcoming . . . . A third area, I believe, concentrates on this area of the utilization of reinforcement principles in the management of social behavior. This has come to play an important role in classrooms--the utilization of satisfying experiences and events, social reinforcements--all the ways in which satisfying conditons can be arranged to motivate children to respond more in the classroom, accurately and more rapidly. Some of the application of principles of behavior and, more specifically, principles and procedures of reinforcement in the classroom, have given teachers for the first time ways of predicting the direction of change of behavior in a classroom. I feel there has been some great progress in this area . . . . Those individuals who have been concerned with precision teaching, essentially Dr. Ogden Lindsley, University of Kansas; Dr. Eric Haughton, University of Oregon; . . . the program in the University of Washington Experimental Education Unit, . . . have been in the forefront of the development of procedures for continuous measurement.

Early Childhood

A total of 58 projects or studies were cited in this area. In addition there were at least 10 projects with a primary focus in one of the other topic classifications, but work with young children was one of the factors. As may be expected, cultural disadvantage or deprivation was often an element. The kinds of studies mentioned were concerned with identifying handicapping conditions in infants, innovative day care programs, early intervention programs (particularly noted were the Peabody Regional Intervention Project and Weikart's study), and preschool and primary curriculum efforts (i.e. Bereiter and Engelmann, Karnes, Guskin, and Spicker). Also several of the researchers in the areas of the deaf and speech and language problems indicated their interest and concern in work with young children.

Well, I think that the major problems that are of current interest are those under The Handicapped Children's Early Education Assistance Act of the US Office of Education. I think those problems and the related training and evaluation are relatively new, and I think these are the revelant projects that are . . . proceeding at this time which, I think, have great possibility.

I guess the third area is the whole realm of preschool instructional materials versus curriculum. Of course, you've got a lot of people there. Merle Karnes, Spicker, Weikart, quite a wide variety of people working on a curriculum model approach to preschool education.

. . . early language development, because that's my specific interest. . . . That is development of language and the identification of deviancies in language development prior to 3 years of age. Many of the projects, or at least several of the projects, which are now getting started through the Early Education Assistance Act, I think are quite important there. I'm interested in all kinds of work that relate to early development, particularly of language, whether it's connected with a specific disability or not. For instance, some of the work they've done at the University of Wisconsin with children from urban ghetto environments and their intervention quite early in life, I think that some of their findings are quite significant. I think along the line of identifying the factors early in development of children with language disorders who are not deprived children necessarily. Along that line of thinking, some of the work being done or having been done by Gertrude Wyatt is very provocative.

The work that has been the greatest to me in the last year or so has been the work that Marian Blank has been doing on trying to help children develop a thinking system, as she calls it. She has been dealing with preschool, disadvantaged, and average children. She has done a bit of work with some kinds of more exceptional children, but I am not sure what it's been. I have been more interested in it just from a standpoint of the disadvantaged, but I think it has implications for anybody who is interested in the cognitive processes of children. She is at Yeshiva University in the Albert Einstein College of Medicine.

I think one such project is that one being carried out in Milwaukee, Wisconsin that's under the direction of Dr. Heber. The reason it is interesting is because he is working with very young children and he is doing this over a period of time, either disadvantaged or core-type children, and the reason it has implications, I think, very clearly is because it goes to prevention. That I think is a very critical area, and in my view it is one of the more important studies that is being done. Another one that I have become acquainted with recently, . . . is also a critical study, and a longitudinal study by Tom Jordan. And what Tom has is what he calls a cohort or a group of children which he is following up and testing from time to time intermittently getting this basic gross data.

[The Regional Intervention Project at Peabody College] . . . and what it does is to take parents of children who are severe behavior problems, have autistic behavior, or are oppositional children – the kind of children that climb the walls, that are uncontrollable, that have complete control of their parents by their deviant behavior. Those parents and their children are being brought in and the parents are being taught behavior management principles, and then the parents become instructors for other parents. So it's a parent organized early intervention project. And it's proving very successful . . . . The children are preschool children--very young children.

I am interested in the work being done by John Ora at Peabody. He is involved in a regional intervention project, using preschool oppositional or autistic children, and training their parents . . . . The other project that I find most interesting is the DARCEE Project (Demonstration and Research Center in Early Education) and their work with culturally deprived children. This, too, is at Peabody.

Following are some excerpts from the interviews in which the researcher describes his own work or a project in his program for which he has some responsibility.

I wouldn't want to claim direct involvement in any of these things. Let me mention first of all the study in which I am directly involved that also is a program of research studies rather than a single study. We call it our perinatal research study, and sometimes the educational followup study. This is a study in which we're now in our fourth year in which we pursue children born into the collaborative perinatal research study which started in 1959 and has been supported since 1959 by the National Institute of Neurological Diseases and Strokes. The Perinatal Research Branch of that organization, working with 12 hospitals around the country, has identified 50,000 to 60,000 pregnant women and then with the respective research design, followed the course of pregnancy, the birth itself, and the infancy of the children born to those mothers who become the sample of the study. The oldest of those children is now 10 or 11 years of age, but more like 10 than 11. The National Institute of Neurological Diseases was following those children up through about age 6 or 7. We have picked up the Minnesota hospital-born children of that group at 4 years of age and have been following them under US Office of Ed, Bureau of Handicapped support with educational and behavioral measures trying to find out what relationship there may have been between various categories of handicap as identified in school and the early history, particularly the medical history and the anomalies of pregnancy, birth, or infancy. We expect that some of the handicapping conditions we see in school will have direct antecedents to those medical problems. We expect also that many handicapping conditions, that over the years have been thought to be directly caused by medical problems in early years, will turn out not to be so related. That's one study we think is something that can have important impact in special education.

. . . I'll have responsibility for the program in behavioral research. There have been three layers of activity that have gone on in the center – one being with infants, mostly involved with nutritional studies on the transmission of infection. There is a question in my mind whether a major effort might be made with infants on a behavioral level . . . and I'm going to have a planning effort on this and see what we know about these youngsters and what it might be possible to do in our particular setting. Then there's a preschool day care program and the real challenge there is to do something different than what is being done in a dozen other places throughout the country. I mean everybody is trying to develop a curriculum to intervene in the lives of poor children in order to have them be more effective cognitively when they get in school. That's a good objective. The question is we don't want to be the thirteenth in that particular series and we need to look at some differrent elements. I think that the systematic organization of instructional materials to meet very specific goals is what we're looking for. There is a definite change in the intellectual development of children at around age 6. That change is not just one that's continuous in which you are getting more of something. It actually breaks off into different kinds of activity mentally. There is reason to believe in my opinion that the poor results in Head Start or the discouraging results that have been widely publicized are due to the fact that the youngsters are shifting into the different mental type of activity. We don't take that into account when we use the measuring instruments that we use, so that there's probably a different reason for the results than on the research that's been done on youngsters who are 4 and 5, particularly in trying to improve their mental abilities. I think it needs to be looked at very closely and we need to build very specific kinds of instructional devices that will help a youngster over this barrier, cliff, or whatever it is, but it certainly is not just stepping from one room to another. It's a major mental move. I don't think it's recognized as such.

Our current interest is in comparing three different educational models for the education of disadvantaged and functionally retarded children. We use our own approach which is based on a Piagetian model which we call a cognitively oriented curriculum. We are comparing this with a unit based or traditional nursery along with the Bereiter-Engelmann language training approach. Now we are finishing our third year of operation and indeed are complete at this point in collecting the last of our data.

Right now I am working on developing thinking and communication tasks for preschool children. We've been working with disadvantaged kindergarten children and also with children who are learning English as a second language.

. . . A rather lower income, slum area where we've been working for the last four years. So some of the work I've done has to do with early childhood education and the observation of children. My particular interest is disturbed children and children in inner city areas. My research interest has to deal with observation of children in classroom settings. . . . I've identified a conceptual area called productivity and I've been trying to get empirical material on the productivity of children in classroom situations. This cuts

across preschool, primary, special classes for retarded and disturbed children.

Another area in which the Center operates is the development of preventive strategies, such as preschool and primary curricula which will maintain children in regular classes and the administrative arrangements which will do this.

Well, I am doing a study on a longitudinal study of cognitive development in children who are at a very high risk of becoming mentally retarded, which I have been carrying on for about 3½ years now . . . . Bereiter and Engelmann have been concerned with this . . . . In Milwaukee, we identified a population of families where the mother is mentally retarded and where other older siblings tend to be mentally retarded. In these families we have picked up babies from birth and we've placed a group of these babies in an experimental facility where we care for them during the day. We pick them up from home in the morning and return them home in late afternoon. In this environment, say where you have these kids from the first few months of life, we designed and are carrying out a stimulation program. In essence it tries to do everything that we know how to do that might facilitate the development of intellectual skills. So the focus of this project is really not to see how effectively you can remediate intellectual deficits in very young children as has been the focus of preschool studies, rather to see whether one can prevent the development of mental retardation in a group of children who otherwise almost certainly would be identified as retarded.

So I think the whole thrust of special education in research at this point has to be in terms of looking downward in age to find out at what age level these kinds of behavioral disabilities can be identified, and secondly then, how they can be most effectively managed or treated by special educators.

I have been concerned very much with the ways in which such things as the pregnancy of which the child is a product and the health and nutrition of circumstances to which he has been exposed in development contribute to the readiness with which he will develop problems in school learning . . . . We have been very much concerned with the problem of the very early identification of children who are at risks for developing learning disabilities, and this had led Turkewitz and me and others of my colleagues to make detailed studies of the behavioral organization of one- and two-day old infants with the object of defining the nature of normal neurological organization of the first days of life and so to develop methods for the very early identification of children whose neurological organization and behavior organization is abnormal. We have now completed a number of studies in this area, many of which are published, and we are now in the process of doing followup studies in which we are looking at the longterm fate of children with deviant organizations which are identifiable in the first days of life . . . . My work in Mexico and Guatemala has, over the past ten years or so, continuously pointed to the role which malnutrition, as it effects development and growth, contributes to school failure on the part of children in those communities. Current work includes studies and followup studies of children who have previously been exposed to severe malnutrition at particular ages to look at critical periods with respect to brain vulnerability to nutrition in itself.

Strategies for Special Education

This area, which received about 40 citations, deals with the administrative organization of special programs. It includes the issues regarding special class versus regular class versus alternative programs, the environments in these various programs, the problem of labeling of children, and related concerns. This area was mentioned 16 times as the "hottest controversy" or issue in the field–some expressing much concern that people are looking at an either/or situation rather than at alternatives, and that positions are taken without supporting data. A number of research and innovative efforts were cited–among them the works of Frank Hewett, William Morse, and the Indiana University R&D Center.

The selected comments both illustrate the concern the researchers have for the problems in this area and discuss some of the current research efforts underway. So many of today's professional publications on this topic tend to be reviews of the literature or academic discussions of the controversial issue. It is most gratifying to know that substantive research explorations are underway.

One of the things that I think is exciting work is what's going on at the University of Indiana under Sam Guskin – the activities in which they're engaged relating to mentally retarded kids. And they are in a series of studies in which the end result is hoped to be a better opportunity for children now classified as mentally retarded to escape that kind of classification in school and to be able to receive the kind of normal mainstream services in schools rather than the special classification, special education, special class kind of service. That doesn't mean the absence of additional supports such as resource teachers and resource rooms. It simply means that they won't be labeled and have all the educational system and everybody who comes in contact with them respond to them according to the stereotype label mentally retarded. I think that's kind of interesting and exciting stuff.

Well, I'm very interested in the whole general movement away from categorical approaches to children that is rather, I think as yet, poorly defined. I suppose it can, in part, be characterized as the learning disorders movement or learning disabilities movement.

One other thing that I didn't mention earlier, when I was talking about this special class - no special class, that is going to solve a lot of those problems is the field of learning disabilities, because that's a cause and it's also itinerant resource teacher-centered. I think a lot of answers to some of the controversies that we're having today about special class versus no special class and that sort of thing are going to be solved by the learning disability program that we have, that we're establishing at the present time, because it's probably the closest to regular education of any of the special education fields.

Specifically, the first project that we just got underway is trying to develop a schema for identifying the behaviors that cause kids to be labeled exceptional. That is, we're trying to come up with behavioral classification rather than the current medical model. We're doing this in terms of rates of deviant behaviors that kids show in certain domains, such as the language domain, social-emotional behavior, sensory-motor behavior and so on, so that we hope, instead of labeling kids emotionally disturbed or learning disabled or whatever, to be able to say he's deficient in language behavior Number 12.

Also in California you've got the Fountain Valley School District Special Education Department, which runs both a Title III and a Title VI program that relates. They have been highly successful at meeting the needs of educationally handicapped and mentally retarded children within their regular class structure. They have also done considerable work, like about three years worth, on developing skills in teachers for individualization of instruction, and in fact they will probably be training teachers from around the state in this sometime next year.

I have a project right now that is being sponsored by the Massachusetts Advisory Committee on Education and this project has three foci. One, we are evaluating children in special programs in the state through a series of studies – studies of children in institutions, studies of children in clinical settings, studies of children in day care and preschool programs, studies of children in special classes, studies of both exemplary programs and normative programs. Secondly, we are evaluating the nature and extent of exclusion, exemption, and suspension in the schools. So on the one hand we are studying handicapped children in programs and on the other handicapped children who have been excluded or exempted. And this is a very considerable problem--much more so than people have realized or much more so than I have realized heretofore. Thirdly, we are then looking at all of these data and through collaboration with legal consultants on this project and our own regular staff, we are designing prototype legislation that will better meet the needs of handicapped children in Massachusetts. . . . We think that this study, which is based on some very carefully developed quasi-experimental and other field

research models, will have some considerable significance, not only for Massachusetts but for many, many other states that are confronted with lots of handicapped children and very few alternatives – institutionalization, special class, or some of the other more traditional alternatives, and if these things don't seem to work, exclusion or exemption or remaining in regular programs.

One thing we are working on is an attempt to get some idea of what happens to children who are in special provisions, either in institutions or in programs in public schools. We've been doing a series of followup studies. There are five of these, of which four are just about, I think four are finished, to see what kind of results you get out of them as near as we can tell. The basic issue seems to be that these overgeneralizations which are being made like classes are no good, or somebody else's are good, or you should or shouldn't institutionalize kids is a vast overgeneralization of the situation. . . . Our whole research effort has gone toward trying to understand what types of kids need special facilities. We've used some statistical analyses called cluster analysis to kind of see if we can find out. It's not a question of service being good or bad in toto, it's a question of it being related to the kid's problem and to his own perception of himself and a whole lot of other things. So I think that a great deal of the research that we're basing things on, starting with Dunn going on through the field, is now beginning to overgeneralize, and we're doing the same foolish things we did before by saying it was good for everybody. Now we're saying it's not good for anybody.

First of all, our research and development center, of which I'm director, is a center for educational research and development in mental retardation, sponsored by the Bureau of Education for the Handicapped of the US Office. The prime purposes of the Center are to prevent kids from being labeled, identified, and segregated as retarded in the schools, and to retain them as much as possible in regular programs; and secondly, for those kids who are labeled and identified and at least partially segregated, the goal is to improve educational practice so that they will be maximally accepted as adults. Now, within the Center, we have four general areas, one of which is the impact of labeling and expectancies upon teacher and pupil performance. And that really has two components. One is studying the impact of special classes and the other, more controlled laboratory studies of expectancy and labeling.

For two years we have been attempting to extend what we learn from the engineered classroom with educationally handicapped children into a program that would serve primarily the educable mentally retarded, the emotionally disturbed, and the learning disabled, but also would include the blind and the deaf. We have developed a sort of administrative and grouping framework and strategy in the Madison schools in the Santa Monica District and where, for two years, we have had a class for blind, deaf, emotionally disturbed, learning disability and mentally retarded, educable mentally retarded children--all participating in a single special education program in which they were grouped according to their readiness for functioning in regular classrooms rather than on the basis of any other diagnostic evaluation.

Innovations in Personnel Training

Although the people interviewed did not focus on any particular project or projects, there was a total of twenty-six responses related to personnel training activities. There was a variety of approaches that were described as "innovative," "creative," "promising," etc. Examples are described in the following statements.

Another project is one that's been developed by Pete Knoblock (Syracuse). What he has done is bring a group of faculty and students into one of the elementary schools in Syracuse, and it's a kind of a clinical preparation program for crisis and clinical teachers. They're essentially his students in disturbance but these students don't only work with disturbed children, they work with all of the teachers and the children in the schools and the administration. Some are working in classrooms as a classroom student teacher; others are working as crisis teachers in the school; others are doing remedial work in the school.

I think there's an awful lot of interesting work that's being done outside what is generally called special education that ought to be called to the attention of special educators. . . . For example, there has been the development of microteaching and minicourses that are using video tape and are a teacher training device that has been developed by Stanford and the Far West Educational Laboratory. What this does is put on video tape a teacher training program that is pretty much self contained. A teacher may have a camera and some tape - most school systems of size have this kind of equipment. Using these materials, using the tapes that illustrate different kinds of teaching practices and various scales and measuring instruments which allow her to check her own behavior off, she can modify her own teaching performance. This was not developed for special educators but it's just as applicable to teachers in special education as it is to teachers in any dimension.

The projects that are going on now that would involve training programs for teachers of disturbed children that are more experiential in nature are the kinds of things that interest me. For example, Dr. Nicholas Long and a group at Hillcrest Children's Center are involved in a training project with perspective teachers of disturbed children and they are being trained in the field setting and that's the kind of activity that's most interesting now. There is another project in Atlanta at Georgia State that I understand follows a similar kind of pattern. Dr. William David is involved with that.

. . . A project called "Remedial Diagnosis" . . . is one of the slickest, uptodate utilizations and multidisciplinary teams I have ever seen. Not only doing diagnosis in remedial work with kids, but in the process training teachers to do the same blasted stuff. It is really an effective team, and that's in Marin County, California and they are working out of Marin County Schools Office.

Dan Sage (Syracuse University) has been involved in development of simulation materials for preparing administrators and supervisors of special education programs. These are the problems that have been developed and tested and have been utilized in a number of school districts, both in New York State and other parts of the country – problems that have been simulated using a program which he calls The SEATS Games. It stands for simulation, supervision. I don't have the exact title of that thing, but it is part of an ingenious way of presenting problems, live problems, to people either in training for administrative work or inservice people, relatively inexpensively, permitting these people to simulate the problems and deal with them and possibly teach the problems. This is something that has a great deal of value and, from what I understand, a good number of the administration programs in this country which are training administrators in special education are using these materials.

We're in the process of developing, at the University of Michigan, a very unique - it will be unique in the United States and I suspect unique in the world - program whereby we are going to be bringing under one administrative roof about 20 disciplines, within a philosophy of all disciplines among equals, to attack the total issue of manpower training in the broad field of mental retardation and the developmental disabilities. . . . The issue will be primarily the conceptualization and development of techniques whereby, in a very definite interdisciplinary and multidisciplinary model, a different type of special education person will be prepared for the field.

I'm spending a considerable amount of time now in new formats for training teachers in the area of the emotionally disturbed. We've had a rather extensive three year project which was on training preschool teachers, and what we're trying to find out is what kind of information you could collect about a person ahead of time which would influence how particular kinds of training experiences would influence that person, and then finally, what kind of final performance you might get by some kind of objective criteria, as a trainee works with children. Now such things as whether the

trainee gets a more lax supervisor, and what kind of anxiety gets into the training situation and a lot of these kinds of issues are what we're working on. The major thing is that again all the studies have been group studies. They take all of the teachers of emotionally disturbed, teachers of retarded versus normal teachers, and try to make studies based upon gross group relationships. And what they get are small differences between them on mean scores, but they mean nothing to help you understand what actually does go on with the training and the variance within the group. So our hope - we're using processes to make predictions on the basis of individual people, rather than on the basis of how does this group react to the kind of training program. We're doing this in a new type of training in which they spend a full day in the setting and then we bring the courses to them in the setting. We have an integrated institute for this small group of people, rather than the usual courses and so on.

We are concentrating fairly heavily on inservice education and particularly in fairly shortterm modes where we would work with a group intensively, say, for three days and then come back and work with them in the classrooms over the next couple of weeks, but not semester type patterns and that sort of thing. In doing this, what we are aiming for is completely packaged inservice programs where the stimulus material and the tasks for the participants, the followup activities, and everything else are well enough developed and spelled out so that other people can take the ball and run with it. We have done one package in the area of classroom management for educationally and mentally retarded. Somewhat of a spin off on these, we're developing sound film strips which boil the whole thing down with visuals. Those we're going to validate with several groups, primarily with teachers in sparsely populated areas where inservice conferences would be inefficient and uneconomical.

Curriculum Development

Research efforts in curriculum development for the retarded emerged as a significant topic because the few projects cited were very substantial and were recognized as promising contributions to the field. The major projects identified were Herbert Goldstein's social studies curriculum study, John Cawley's work in arithmetic and reading, and the comprehensive studies at the three USOE-BEH supported R&D Centers at Teachers College, Columbia University, the University of Indiana, and the University of Minnesota.

I'm looking forward to what some research and development centers, that have just been funded or recently funded in the last year or two, can do. There's one in Indiana and one in Minnesota. The reason why I say that is because I think one of the real needs, if I may speak about the mentally retarded for a moment--educable mentally retarded--is to develop some systematic curriculum that is designed for their needs, instead of just having the teacher pick up bits and pieces of things here and there and try to put them together into a program for the youngsters. To develop a curriculum and develop a major effort in curriculum takes money. It takes staff; it takes constancy; and it takes time. Individual investigators cannot do it. What you need are teams of people, each of whom has different skills. Perhaps one that exemplifies that approach as much as any is the study that Herb Goldstein is doing at Yeshiva.

An area that I guess you would say is quite interesting is the much more systematic work and much more evaluative work currently being conducted in terms of a curriculum program for the mentally retarded. A couple of names on that would be Dr. John Cawley, University of Connecticut, who's working on arithmetic curriculum; Dr. Herbert Goldstein, Yeshiva University, who's working in the area of social learning for the mentally retarded; Drs. Dorothea and Sheila Ross, Palo Alto Medical Research Foundation, who are working on language and early reading programs and curriculum for the retarded; and Dr. Bill Meyer, University of Colorado, who is working on science curriculum for mentally retarded children.

Well, of course the whole realm of curriculum–Herb Goldstein's work, I think, is very relevant and very important and in need of an awful lot of extension and development.

We have a curriculum development center supported by the Bureau for Education of the Handicapped in the US Office of Education. Our central goal – we have a number of goals – but our central goal as of the moment is to develop a comprehensive developmentally organized educational program for the educable mentally retarded. And our style of operating is to prepare curriculum in our center, then field test it in a representative bunch of special classes, in this case, about 400 in 15 states. This gives us a demographic cross cut and accounts for a number of other variables. . . . Example, we want to establish the validity of curriculum and its reliability. We want to find out if it communicates with the teachers when it's written very basically and even whether or not its physical characteristics lend the application of the curriculum to classroom use.

Other Topic Areas

As we expected, there were a considerable number of projects and studies mentioned that were somewhat discrete and did not cluster around a particular problem. Generally these research studies could be categorized as dealing with pupil characteristics, learning styles, instructional methods, and instructional materials. About 50 different projects were named. The topic area of individualized prescribed instruction was the only one which received several citations. There was some focus and attention on the development and evaluation of instructional materials, the development of equipment related to braille and braille codes, and the study of teacher-pupil interactions in the classroom.

Within the area of speech, language, and communication disorders, there was very little clustering of topics or projects. This is probably due to the composition of the people interviewed representing this field. Most were specialists in discrete subareas and reported research interests in their areas. Thus, there was a scattering of research studies in stuttering, cleft palate, voice disorders, and articulation.

Summary

In a telephone interview, 57 selected individuals in exceptional child research were asked to identify current, significant research or research related projects. Although a considerable number and variety of studies were cited, there was a convergence on five major topic areas. These were: (1) Behavior Modification; (2) Early Childhood; (3) Strategies in Special Education; (4) Innovations in Personnel Training; and (5) Curriculum Development in Mental Retardation. Not only did the telephone interviews pinpoint the target areas for the development of information products but also demonstrated a most effective and efficient mechanism for tapping into the special education grapevine.

PARTICIPANTS IN TELEPHONE INTERVIEW SURVEY

SAMUEL C. ASHCROFT, Professor, Department of Special Eudcation, George Peabody College for Teachers

BRUCE BALOW, Director, Research and Development Center, Department of Special Education, University of Minnesota

BARBARA BATEMAN, Associate Professor, School of Education, University of Oregon

ALFRED BAUMEISTER, Professor, Department of Psychology, University of Alabama

CARL E. BEREITER, Professor, Department of Applied Psychology, Ontario Institute for Studies in Education

SIDNEY W. BIJOU, Professor, Department of Psychology, University of Illinois

HERBERT BIRCH, Research Professor, Department of Pediatrics, Albert Einstein College of Medicine, Yeshiva University

LEONARD BLACKMAN, Director, Research and Demonstration Center for the Education of Handicapped Children, Teachers College, Columbia University

BURTON BLATT, Director, Division of Special Education and Rehabilitation, Syracuse University

DORIS P. BRADLEY, Director, Cleft Palate and Speech Rehabilitation Clinic, University of North Carolina

JOHN F. CAWLEY, Professor, School of Education, University of Connecticut

JAMES C. CHALFANT, Associate Professor, Institute for Research on Exceptional Children, University of Illinois

WILLAM M. CRUICKSHANK, Director, Institute for the Study of Mental Retardation, University of Michigan

FREDERIC L. DARLEY, Consultant and Professor in Speech Pathology, Mayo Graduate School of Medicine

NORMAN ELLIS, Professor, Department of Psychology, University of Alabama

JAMES J. GALLAGHER, Director, Frank Porter Graham Research Center, University of North Carolina

FRANK GARFUNKEL, Professor, Special Education – Educational Psychology, Boston University

HERBERT GOLDSTEIN, Director, Curriculum Research and Development Center in Mental Retardation, Ferkauf Graduate School of Humanities and Social Sciences, Yeshiva University

ROBERT GOLDSTEIN, Professor, Department of Communicative Disorders, University of Wisconsin

SAMUEL L. GUSKIN, Professor, School of Education, Indiana University

NORRIS G. HARING, Director, Experimental Education Unit, Mental Retardation and Human Development Center, University of Washington

J. DONALD HARRIS, Professor, Department of Speech, University of Connecticut

RICK HEBER, Professor of Education, University of Wisconsin

FRANK M. HEWETT, Chairman, Department of Special Education, School of Education, University of California at Los Angeles

KATHRYN HORTON, Chairman, Language Development Program, Bill Wilkerson Hearing and Speech Center, Vanderbilt University

DORIS J. JOHNSON, Assistant Professor, Department of Communicative Disorders, Northwestern University

SAMUEL A. KIRK, Professor, Department of Special Education, University of Arizona

PETER KNOBLOCK, Associate Professor, Division of Special Education and Rehabilitation, School of Education, Syracuse University

LAURA LEE, Associate Professor, Department of Communicative Disorders, School of Speech, Northwestern University

OGDEN LINDSLEY, Professor, Bureau of Child Research and School of Education, University of Kansas

DANIEL LING, McGill University

NOEL D. MATKIN, Associate Professor, School of Speech, Northwestern University

BOYD McCANDLESS, Director, Educational Psychology, Department of Psychology, Emory University

JAMES J. McCARTHY, Professor, Department of Studies in Behavioral Disabilities, University of Wisconsin

ROBERT B. McINTYRE, Principle Investigator SEIMC, University of Southern California

FRANK MELONASCHINO, Director, Division on Mental Retardation, Nebraska Department of Mental Health

DONALD MOORES, Assistant Professor, Department of Special Education, University of Minnesota

WILLIAM C. MORSE, Professor, Department of Psychology, School of Education, University of Michigan

JAMES W. MOSS, Acting Deputy, Bureau of Education for the Handicapped, US Office of Education

MAX W. MUELLER, Director, Projects and Program Research Branch, Bureau of Education for the Handicapped, US Office of Education

HELMER A. MYKLEBUST, Professor of Special Education, Northern Illinois University

CARSON Y. NOLAN, Director, Department of Educational Research, American Printing House for the Blind

WILBERT PRONOVOST, Director, Communicative Disorders Section, Department of Special Education, Boston University

DANIEL D. SAGE, Coordinator, Special Education Administration Program, Division of Special Education and Rehabilitation

SEYMOUR SARASON, Professor, Department of Psychology, Yale University

RICHARD SCHIEFELBUSCH, Director, Bureau of Child Research, University of Kansas

PAULINE SEARS, Professor, School of Education, Stanford University

MELVIN I. SEMMEL, Research Professor, Center for Educational Research and Development in Mental Retardation, Indiana University

GERALD M. SIEGEL, Professor, Speech Clinic, University of Minnesota

DONALD STEDMAN, Director, JFK Center for Research on Education and Human Development, George Peabody College for Teachers

LAWRENCE STOLUROW, Director, Computer-Aided Instructional Lab, Graduate School of Education, Harvard University

CHARLES STROTHER, Director, Child Development and Mental Retardation Center, University of Washington

E. PAUL TORRANCE, Chairman, Department of Educational Psychology, College of Education, University of Georgia

DAVID WEIKART, President, High-Scope Educational Research Foundation, Ypsilanti, Michigan

HARRIS WINITZ, Associate Professor, Speech and Hearing Science, University of Missouri

FRANK WITHROW, Director, Division of Educational Services, Bureau of Education for the Handicapped, US Office of Education

EMPRESS ZEDLER, Professor, Department of Special Education, Southwest Texas State College

Target Areas of Concern—Organizations Reply

June B. Jordan

Are there specific problem areas, issues, or trends that your association or unit has identified to receive program emphasis?

Responding for the Alexander Graham Bell Association for the Deaf, Executive Director George W. Fellendorf identified "the problem of communication among and between parents and professionals ... one of the most important problems facing us."

Excerpts from a "Statement of the Alexander Graham Bell Association for the Deaf," dated May 18, 1970, point to the Organization's concern for the dissemination of information on existing resources and the need for additional programs, resources, and trained personnel.

> The Alexander Graham Bell Association for the Deaf is a non-profit organization founded in 1890 by Alexander Graham Bell to collect and disseminate information relating to the deaf, to actively promote the teaching of speech and lip-reading to the deaf, as well as to encourage the use of residual hearing by the deaf through special training ....
>
> It is estimated that today in the United States there are approximately 3 million children under the age of eighteen with some degree of hearing loss. This would include an estimated 25,000 children born with a hearing loss after the 1963-64 rubella epidemic. Almost 45,000 hearing impaired children are now receiving some special education, either in schools or special classes. Others are receiving some preschool training, some guidance and counseling, and some auditory training and/or hearing aid fitting. But there are probably half of the population, or more than one million children, whose needs are not being met.
>
> The discrepancy between the estimates of children needing help and those receiving help is due to a widespread lack of information and informational services. A basic need exists for adequate parent counseling in order to identify the handicap and to provide some direction toward alleviating the problems of the handicapped child ....
>
> Throughout the country, there is a lack of information as to the potentials of the deaf child, and as to how he can be brought up to function optimally in society. Organizations within the community, schools, clinics, recreational facilities, business and industry need to be aware of the services they can provide for the handicapped, as well as how the handicapped can function within or with the help of these organizations. There is also a serious shortage of teachers and supervisors trained in the specialized needs of these handicapped youngsters.
>
> While either residential schools for the deaf or some program for the education of deaf children from first grade through the eighth grade currently exists in every state, many of these facilities are understaffed, overcrowded, or limiting in their educational resources. Moreover, many of the children from these schools are unable to continue their education beyond the eighth grade because they have not learned to function in a normal hearing society, and/or there are a limited number of programs to which they can apply. The development of the Model Secondary School for the Deaf is an initial step toward providing the necessary educational bridge between elementary education and either college or vocational training. But one school will not adequately provide for the needs of the hundreds ready for this level of education every year ....
>
> Significant improvement in comprehensive services to hearing impaired children can be effected only by a three-pronged program. The public must be made aware of existing resources; more programs and resources for the hearing impaired as well as as multiply handicapped children must be developed, and additional teachers,

supervisors, and professionals must be trained in services for the hearing impaired. Federal support in carrying out these three recommendations will be a "giant step" toward enabling every handicapped child to live up to his full potential for a happy and useful life.

CCBD

The Council for Children with Behavioral Disorders (CCBD) appeared almost primed for the Information Center's survey. President-Elect Paul Graubard (now CCBD President) responded not only with an official position statement but with a proposal to take joint action on an identified problem area.

> Your letter came at just the right time because our division membership, at its annual meeting in Gary, has just given a mandate to the executive board to investigate, publicize, and make recommendations about what is actually transpiring in special education classrooms, training schools, detention centers, hospitals, and social service agencies that have been charged with helping children. The membership is particularly interested in examining the quality of life in these schools and institutions. In one sense, we would like to extend the Morse, Cutler, and Fink report so that in addition to quantitative information we can examine qualitative questions as well. We would also like to pull together the existing literature in this area before embarking on empirical research.
>
> We are reasonably certain that many youngsters are excluded from school because of behavior disorders and are sometimes maltreated in institutions and schools. In addition, we suspect that many youngsters in hospitals etc. are not receiving adequate full-time education. It is one thing to suspect this and quite another to document it and come up with constructive criticisms and alternatives which could be useful for educators, hospital personnel, correctional personnel, legislators, and parents.
>
> We would very much like . . . help from CEC . . . .
>
> This is an area that we think is of extreme importance and we will be happy to work with you in any way that we can . . . .
>
> Paul S. Graubard
> President-Elect, CCBD
> May 11, 1970

CCBD's position reflects this CEC Division's great concern with the inadequacy and quality of existing programs and services for handicapped youngsters. The Division's response supports Priority Area III–New Strategies in Special Education.

TED

The Teacher Education Division of CEC was also initiating activities relative to improved teacher preparation programs in exceptional child education.

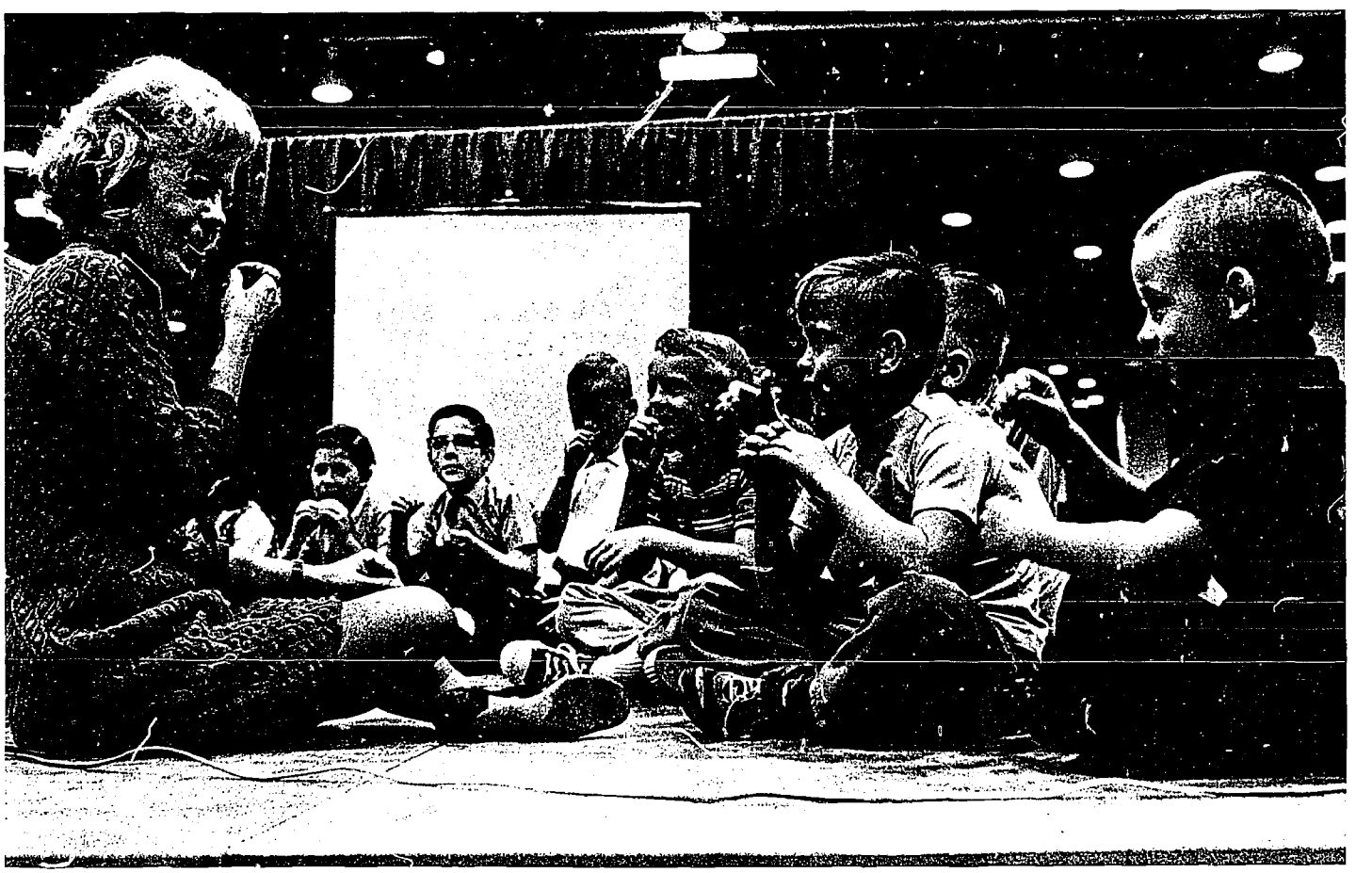
> Just today, a few minutes before I saw your letter, I had written to the officers of the Teacher Education Division. There were several concerns expressed at the Chicago convention. Primarily, we have felt that the Teacher Education Division in the past has not played a very significant role in either shaping or promoting policy on behalf of the improvement of teacher preparation with exceptional children. We are exploring the possibility, now, for a conference . . . to be sponsored by the Teacher Education Division and possibly other universities and the Office of Education . . . .
>
> We will keep you informed about our activities and progress in this matter.
>
> Burton Blatt
> President-Elect
> May 12, 1970

Policies Commission

During the 1970 Annual CEC Convention, a series of Impact Sessions were conducted by the CEC Educational Policies Commission. The sessions were designed to give convention registrants an opportunity to identify and confront current, critical issues and to formulate relevant responses. Chairman Maynard C. Reynolds provided the following statement summarizing his impressions of the Impact Sessions:

> This is a statement of some gaps and problems as I judge them to exist on the basis of experiences at the CEC Convention in Chicago. My involvement there was in one of the impact sessions run continuously for two and one-half days by the Educational Policies Commission.
>
> 1. There is a great need for more effective sharing on new models for teacher preparation and on new models for offering special education services in the schools as these changes are indicated by changes in preparation.
> 2. There is a serious estrangement which has been long developing between what I call the decision-makers in special education and teachers in special education. What I have in mind is the problem of school psychologists who make allocations of children to programs without full understanding or regard of what the programs are all about. This problem really needs to be attended to.
> 3. There is a gap in communication between special educators and regular educators. This is to say that there is a gap in communication about special education to regular educators.
> 4. There is some tendency in the whole system right now, in which there are many forces for change in special education, to react to "straw men." This is to say that many people are highly critical of special education, but tend to take extreme and rather exceptional cases and straw man it as if it were the typical program. We need to enter the controversy with some cool heads.

5. There needs to be strengthened communication among all the agencies in the federal government which have programs relating to special education. In particular, I think there is need for communications between the Bureau of Education for the Handicapped and the Bureau of Educational Personnel Development.
6. Finally, I would mention the great concern for involvement of more representatives from minority groups in all policy planning activities relating to special education. And somewhat related, there is need to find improved ways by which community forces may be involved in setting policies and plans for special education.



Problems in Exceptional Child Research

Phyllis L. McDonald

An optimally functioning technology of research is vital to maintain an education system capable of changing with society's needs. Viable research is the appropriate and vigilant response to ineffective programs, treatments, and new or previously unrecognized problems in the spectrum of special education services. Research provides information necessary for the creative development of new programs and methods and the modification of existing ones.

Each discipline or field of endeavor is characterized by obstacles in its programs and development which inhibit research. Special education is not an exception.

One purpose of this article is to discuss those obstacles or technical problems currently impeding progress in research. A comprehensive assessment of those methodological areas which are problems should provide direction and guidance to theoreticians in research methodology and serve as impetus to efforts towards solution.

In our estimation, on line investigators in special education were in an excellent position to evaluate the research process and identify methodological problems typically encountered. Investigators were asked the following question: "Do you see any research areas currently being held up by technical obstacles or problems in research methodology that if these problems were solved the research could be conducted?" Responses were generally vibrant, and researchers agreed on two general themes.

First many researchers recognized that research in special education *needs to change* and *to continue to change* until evidence accrues that special educators are focusing on and serving the needs of youngsters in classrooms. It became obvious that there is a fermenting drive to change the whole structure of research, to

We are always on the prowl for ways to understand a little better what's going on in these young children . . . . We have so few adequate methods for evaluating them.

It's hard to appraise outcomes or effectiveness of methods which are designed to change people's behavior when we are so limited in our measurement of behavior.

Ideally, in order to collect data on change in language performance we have to collect spontaneous vocalizations from children on a 24 hour basis over a period of several months.

remove old shackles, to develop new attitudes, methods, and goals for research, and to design a research discipline to meet squarely the needs of special education.

Second, researchers realized that special education would profit greatly by establishing effective communication links with the several allied disciplines. Lacking at present are time, appropriate forums, and information systems to facilitate idea exchange across disciplines. Nonetheless, special educators expressed a strong desire to begin to establish these links and emphasized the skills needed to take full advantage of them.

There was no concensus among the researchers as to major technical obstacles impeding progress in research. Obstacles seem to be varied and representative of the whole spectrum of methodology. This wide variation in obstacles cited may have been due to the fact that researchers responded from differing levels of concern. Some described mechanical or highly technical problems. One researcher, for example, spoke of the need for engineering advances which would lead to the development of an electrode which could be implanted in an individual hair cell of the cochlea for a refined analysis of the physiology of hearing.

Other researchers pointed out those obstacles to research inherited from the field of education. Many of these problems still plague regular education as well as special education. For example, the traditional reliance on academic achievement test scores as evidence of effective programing was described by one researcher as inadequate, distorting, and limiting in understanding the complexities of the learning process. One alternative suggested was to assess the *attitude towards learning* inculcated in the student as a direct effect on a specific teaching technique. The researcher elaborated that while this variable was subtle and more difficult to measure it would ultimately contribute more to an understanding of the dynamics of the learning process.

Still other researchers talked about problems in special education research which clearly derived from the broader social system. Changing political interests, for example, was viewed as having a potentially profound effect on both the amount and kinds of research to be conducted in education and other disciplines which rely heavily on public funds for support.

The remaining portion of this chapter on obstacles to research is developed around these three topic areas:

1. Methodological obstacles to research;
2. Discipline centered problems;
3. Societally based problems.

Methodological Obstacles to Research

Many of the methodological problems identified were not unique to special education but have been cited in the past by investigators in the behavioral sciences. A few of the obstacles, however, could be considered crucial to special education.

We need the development of instrumentation that would allow us with a visual display to monitor oral breath pressure at all times during the speaking process.

There is always a problem of trying to obtain accurate information from inside the human body.

[We need] some kind of a device that would give us immediate feedback on the way a child's eye moves in relation to reading material . . . .

Now it's entirely possible to do electroencephalographic telemetering right off the child's head while he's engaged in learning in the classroom.

The problems of conducting longitudinal research have not been resolved.

The basic research problem is the use of group statistics which have nothing to do with individual kids.

I think we have been slavishly adhering to the physical sciences in our research approach by using the traditional design for research and experimentation.

We should move away from the statistical models of research and toward that which is action oriented.

The following types of methodological problems emerged: (a) measurement, (b) sampling, and (c) special problems.

Measurement. Valid and reliable measurement techniques and equipment were most frequently listed as a key problem in the conduct of research. Researchers feel that present techniques and instruments are not adequate. Yet precise measurement is essential for a valid basis of comparison across sample populations and for reliable prediction.

The observation and measurement of human behavior emerged as both the most important obstacle to be overcome and at the same time the most difficult one to solve. Researchers were acutely aware that the measurement of human behavior in all its complexity has long been a challenge to psychology, psychiatry, and special education. In early stages of development, the behavioral sciences approached behavioral measurement too simply and research designs were often underdeveloped relative to the phenomenon under study. Today researchers are more cognizant of the complexity of human behavior and the problems this presents to research designs.

Not only are the subjects under study complex, the problem of measurement is further complicated by the researcher himself. The effects of investigator bias and contamination and the dynamics of both the Hawthorne and Heisenberg effects were discussed as serious factors to be considered in research design and analysis of results.

A strict definition describes measurement as the assignment of numerals to objects or events according to rules. Since many of the concepts used in behavioral research are abstractions, researchers expressed concern over the lack of concensus on operational definitions for behavioral constructs. While researchers may be able to identify hyperaggresive behavior when encountered in the classroom, investigators have little confidence in placing upper and lower limits on aggressive behavior. Without the necessary rules, then, the development of a measurement instrument of wide acceptability is impossible.

Several researchers explained the measurement problem as "research needing some technical and conceptual means of taking an integrative look at all the processes which together comprise learning." One wanted to see the development of techniques which would enable researchers to observe and measure the range of variables involved in teacher-student interaction. Another felt confident that eventually the computer could be programed to record data from several simultaneously interacting systems such as the cognitive, affective, and environmental and then provide an equally effective analysis.

The mechanical problems of collecting data at sufficiently discriminated intervals and in bulk quantities were also cited as inhibiting to valid measurement. Certain groups of researchers wanted instruments which would result in the physiological measurement of specified processes, thus allowing them to tap a new potential for understanding. Researchers from the speech and hearing field particularly needed highly technical monitoring devices to record such physical behaviors as the fluctuation in breath pressure that occurs during speech.

Some investigators were optimistic about the possibility of monitoring the physiological processes involved in learning. Tracking eye movement in reading by mechanical or electrical means was an example cited. Such study would lead to exciting breakthroughs in our understanding of how to design learning systems which reinforce or optimize physiological systems and would be invaluable in the development of new treatment and remediation techniques.

Sampling. Sampling in research is the process of selecting any portion of a population or

universe as representative of that population or universe. Random sampling is a process whereby each member of a total population being considered has an equal chance of being selected as a member of the sample or of being assigned to some particular method of experimental treatment in the total research program. The unbiased sample is essential to findings which are internally and externally valid.

Researchers in special education encounter special sampling problems. Those populations most accessible for research projects are most often those students referred for diagnosis or special services. Researchers recognize that this is a distinct disadvantage which can result in a skewed sample and biased results. It would be better if the total range of disabled students were available for study, not just those who have reached a level of severity sufficient for referral.

Researchers were concerned also that it was nearly impossible in special education research to obtain populations of regular students or preschoolers for normative studies. Researchers pointed out that one cannot rely on an investigation of pathology alone for the development of remedial and preventive techniques. Healthy or normal subjects must be studied also. In addition, it was felt that research projects located in laboratory or university settings were limited by populations available for sample selection. Consequently, research projects often are designed to fit the available populations rather than the problem.

Problems unique to research in special education. Certain obstacles to research were considered crucial for the development of good educational programs and unique or particularly significant to special education. Researchers indicated the first problem was a need for special kinds of studies which have not yet been undertaken. These gaps in the spectrum of types of studies prevent the development of programs to their full potential.

Followup studies were seen as important to the assessment and evaluation of special programs, services, and treatment techniques. Many studies of the effects of programing on students have been conducted. Most take place while the student is still participating in the program under investigation. While near term effects can be assessed, the degree of permanency or comprehensiveness can only be tapped through followup studies of the student in his regular milieu. Followup studies could also be used to assess negative effects of instruction or treatment programs. It is conceivable that a particular program or technique is effective in ameliorating a student's immediate problem or symptoms only to create other types of problems for the child which become salient or active when he returns to his regular environment.

Longitudinal studies were also considered essential to broad coverage of the total range of information needs. Other data pertaining to the life space are important in order to understand the effects of the educational milieu. Information about cognitive and affective development, behavior shaping variables present in the family milieu such as child rearing practices, and community methods of social control can contribute greatly to an understanding of the effects of special education programs. Further, a view of educational programs within the context of the social milieu may yield exciting, new methods.

There are several technical advantages to longitudinal studies which explain researcher's interest in this type of investigation. Sampling bias can be reduced significantly through the use of longitudinal designs. Many intrinsic variables which often remain unknowns in stratified sampling are controllable. Since there is greater control over all variables, more reliable cause-effect relationships can be hypothesized for later testing or replication. Longitudinal studies obviate the need to rely on retrospective observation by parents, teachers, or students. These factors are vital to sound research especially in the area of developmental patterns. Frequently with longitudinal studies, observations or measurements can be taken at specified intervals with a closer charting of peaks, valleys, and plateaus in developmental styles.

A second problem results from the current crisis in special education, namely the demand by parents and other interested groups for visible or tangible results, from school programs. In the 1960's the nation began to look to the schools for solutions to social problems. Many new programs were developed and financial

The conceptual and programatic administrative and support bases have been shifting rapidly and preventing the long range development of programs.

We don't need more studies made in individual laboratory experimental situations . . . .

We need to learn to appreciate the real world of the public school; we need to ask what are our public school teachers like, what our classrooms are like, what the limitations and potential in the public schools are, and, most importantly, how we can use this information to help children.

To do the best job we can we need to find a way to take the public schools where they are, get them to accept us, and join our team.

The victims of the information explosion need to learn the sophisticated methods to conquer the systems.

So often we see insights in one field which could actually be of great help in another, but this cross fertilization does not occur.

support provided on the basis of high expectations for significant change. The results have been less than dramatic, leading parents and others to ask why.

A sense of urgency was transmitted when researchers discussed the need for action oriented research rather than classical or pure research. They felt that through action research, investigators could focus on immediate problems. Some researchers felt that much of the pure research should be conducted by the respective disciplines, thus leaving special education to solve educational problems while drawing on support data. Some felt that biophysics, biochemistry, and neurology, for example, should be investigating physiological or chemical relationships to learning problems while psychology, perhaps, should be concentrating on the normative developmental patterns.

Researchers expressed dissatisfaction with current research models and statistical techniques used. Historically special education accepted many research and methodological models from other disciplines. This was a natural consequence of the field's early relationship to medicine and psychology. In addition, early research in both special education and education borrowed statistical techniques from the hard sciences since these were already well developed by the time education became interested in research. These borrowed models and statistical applications are no longer considered satisfactory for research in special education. Special educators want to see models develop which are based on the needs and characteristics of special education. If indigenous techniques are not possible, then skill is required to adapt or modify present techniques to better fit the needs of special education.

Discipline Centered Problems

In various discussions researchers referred to obstacles which were characteristic of the whole field of education and have been carried over into special education. It is a well established fact that education has neither the long tradition of research nor the research institutions characteristic of other disciplines, particularly the hard sciences.

In an educational setting, what we need is a set of conditions that relate to change – to an environment adapting and adjusting to the student while he is learning . . . .

We need an entirely new approach, a methodological approach, which would permit us to do more useful ecological research.

Many of the obstacles to research focused on inappropriate administrative arrangements and funding policies. Government support of research in education has provided a great boost to research and permitted a growth rate far beyond that expected. The establishment of the research and development centers, for example, while contrary to the philosophy of some, has been lauded by others as an attempt to focus on specific needs. (Typically, each R&D center selects three to four major areas of concentration.) Nonetheless, some researchers felt that government administrative and funding arrangements are less than ideal in many respects.

The inability to rely on funding for prolonged periods of time was seen as particularly detrimental to well developed research projects. Time is important to the sound development and continuity of projects. Ideal research is costly because it cannot be conducted instantly and it takes time to develop contacts, to establish communication links with other researchers, and to create the proper environment for the germination of new ideas. One reseacher commented that often by the time a competent staff is assembled and learns to work well together, the project terminates. This turbulent situation mitigates against the well organized administrative base so essential to productive research programs.

Some researchers felt that many new ideas are generated when a researcher is allowed to follow his own interests in a trial and error course. Government funding typically does not support individual researchers to enable them to develop their interests, but supports research projects. Funding is based on an evaluation of structured plans for the project with little room for the pursuit of serendipitous findings.

Also, researchers mentioned that given proper techniques and methods, good research would atrophy without adequate funding to train new researchers. Frequently, the field is at a disadvantage because research is conducted by professionals who are "interested" but have had little or no formal training.

The relationships of research to the public school settings was a problem about which researchers often talked with great emotion. Some wanted more

research conducted in the school setting because, as one researcher poignantly described it, "only in this way could researchers find out what schools are really like, what the children and teacher and their problems really are." Others used research oriented terminology. These researchers discussed the variables affecting students and teachers, influencing both behavior and performance. Many of these variables cannot be identified, they pointed out, until natural observation is undertaken in the school setting. Even after variables are identified, duplicating them in the lab is nearly impossible.

Some wanted to conduct research in the school setting to acquire unbiased sample selection since larger more varied populations would be available. Others felt that work in the school setting generated more relevant hypotheses upon which to base studies as opposed to isolated theorizing. Assessment of journal literature or other professional writings is frequently undertaken for hypotheses formulation but is totally inadequate. Researchers felt that only by working with teachers in schools could they determine real problems since few channels of communication currently exist for teachers to apprise researchers of grass root needs.

The problem of translating research results into practice is a serious one. This problem would be relieved somewhat if researchers were housed closer to, if not in, the school setting. Geographic proximity facilitates communication of results to practioners. Lessened distance, also, allows the researcher to translate or interpret results for the practioners as fits their needs. Moreover, since research conducted in the school attends more closely to real problems, less interpretation is required because results are directly applicable.

One researcher, with a more idealistic or practical approach, wanted researchers to work in the school environment with the teachers. In this way, he said, teachers and researchers could cooperate in creating a head of pressure to bring about change more rapidly and effectively.

Another researcher suggested that perhaps new administrative arrangements for research were needed to gain entrance to the school system. Research units, which many schools are now developing, would be most valuable in such situations to achieve this goal.

Significantly, only one researcher described the lack of theory in special education as a serious obstacle to research progress. This may be consistent with the concern of most researchers for action oriented, problem solving research with little margin for theoretical considerations in the present crisis in special education. Since education has long been criticized for absence of well developed theories, this is a most interesting trend. It may simply be the recognition that in reality little research is conducted without a theory. Few researchers stop at gathering facts or testing via operational definition, deciding that one method is more effective than another. Most go on to develop a causal explanation. Basically, this is theory development.

Socially Based Problems

Some researchers noted that obstacles to research derived not only from the peculiar workings of education and special education but from the national social order. They felt that areas of research were often directed by political leaders. Since government funding supports a large portion of research in education, it is obvious that political leadership has some impact on directions and trends in research. Congressional or legislative members are prone to spur action in those areas of programing which they perceive as beneficial to their constituents. Motivation and interest can cause a legislator to make himself heard by his peers. Changes in national leadership with concomitant changes in economic theory can create problems for the stability of research programs. Current fiscal conservatism, for example, has led to severe curtailment of allocation and appropriation of funds for research in all fields. The drive is towards thrift. Since research has low priority in the national value schema, research funds are often the first to be decreased or deleted in a budget.

Other researchers pointed out that sociocultural factors sometimes affected allocation of research funds. As identifiable groups develop their own technology for being heard in the political arena, their interests are attended to by all concerned—legislators, educational leaders, and community leaders. Researchers were not saying that these interests should be ignored, but that the vacillation in interests is damaging to well developed research. Researchers would not wish to see any areas discounted but others added, as citizens recognize the need for efforts in areas which previously received little attention.

Communication between researchers and across disciplines has been inhibitory

to progress in research. The nation as a whole has experienced an impressive information proliferation in the 1960's. The technological development in information systems has made masses of information available to professionals. Society as a whole has not yet gained the sophistication to cope with the technology of information systems. Some researchers are overwhelmed and discouraged by not being able to keep up with research being conducted which may be related to or even duplicative of their interests.

The lack of communication across disciplines may be the result of a psychological defense or attitudinal set of people who are more comfortable communicating with those within their field. Nonetheless, researchers in special education realize that serious losses are accumulating because of the lack of cross fertilization of information, ideas, creativity, and problem solving techniques.

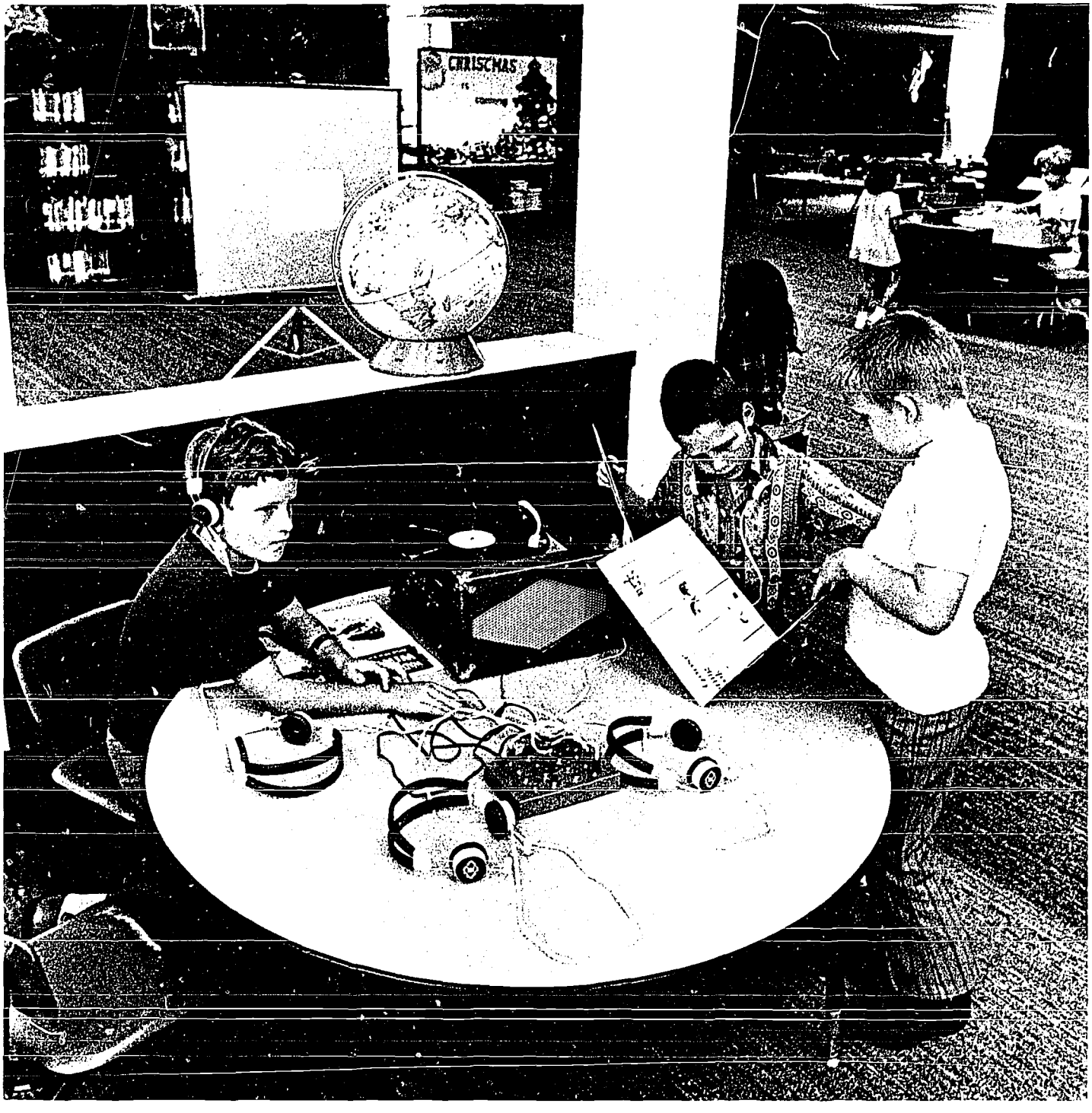
This lack of communication across disciplines also inhibits interdisciplinary problem solving as pointed out by one researcher. Only recently, through the initial efforts of Norbert Weiner, have disciplines begun to recognize that since problems truly are multidisciplinary, efforts at solving them have greater potential for success when attacked by a multidisciplinary team. Some disciplines which special education researchers felt could be involved in special education problem solving were: sociology, developmental psychology, medicine, biochemistry and biophysics, systems analysis, biomedical engineering, anthropology, and legal counseling.

Conclusions

A wide variety of obstacles to research were described and discussed by the individual researchers. Nonetheless certain overriding, very exciting themes became evident:

1. The need to develop models and statistical techniques based on needs of special education rather than borrowing from other disciplines;
2. The need for action oriented, problem solving practical research in the face of present crises in special education and the national social order;
3. The desire to cooperate with school administrators, teachers, and other personnel in the planning and execution of research projects;
4. The need to rearrange or develop administrative techniques or technology to permit sound, well developed, long range research which needs not change with each administration or rising social problem. These arrangements still need to be flexible to meet new problems and challenges head on.

The responses of the many researchers reveal that research in special education is not a sleeping dog, but a vibrant, alive and dynamic force, aware and ready to meet the inevitable challenges which special education and the nation will face in the 1970's.


CHRISCHAS

Current Controversies in Special Education

Phyllis L. McDonald

All things are born in contention. -- Heraclitus

For a full understanding of current conditions in research it is important to consider the controversies alive in the field today. Visible controversy is highly significant to a field of endeavor. Genuine concern by professionals over issues indicates that their field is still developing, not stagnating. A discipline that is not characterized by some contention is one which has either matured and reached its absolute principles or one which will soon be considered decadent because it is not keeping abreast with changes in society.

Controversy or contention plays a valuable role in any discipline. Significant controversies kept alive by active communication among key leaders serve to promote the growth process. Controversy indicates that more than one approach to a specific problem has been developed. Active consideration of alternative solutions to serious problems leads to change and most often progress.

Over time issues tend to become polarized as less satisfactory alternatives are assessed and discarded. When an issue has become crystallized to the point of polarization it provides sound direction for research. Research intervenes at this time to supply new information towards the solution or solutions to a problem through assessment, creativity, and experiment and policy research. In this way new methodologies and techniques emerge for a renewed approach to programing.

When an educational problem develops into an issue, certain assumptions can be made about that problem. First, the problem is obviously an important one for the field since it has become an issue in which professionals have heightened interest. Secondly, when a problem is an issue it may indicate that the problem is more complex and/or critical than many others and that the solution cannot be arrived at easily. Further, a problem may become controversial because it has no universal solution but rather several different solutions which may be equally effective.

In order to survey the controversies extant in special education we asked researchers the following question: "What do you see as the hottest controversy in special education today?"

The most frequently cited issue was special class versus regular class placement of exceptional children. In addition to being mentioned most often it is perhaps the one most crucial to future trends in special education. It has far reaching implications not only for students but for managerial personnel, administrators, and practitioners.

A second issue which loomed large was the nature-nurture issue recently revitalized by Arthur Jensen in an article in *Harvard Educational Review.* Researchers discussed this issue both in relation to educationally handicapped and culturally different school children.

The majority of the remaining issues appeared to relate to open versus closed programing. Generally, the difference between these two approaches is that in open systems decisions about an event are a posteriori while with a closed system programing decisions are a priori. In closed programing there are fewer spontaneous decisions for the teacher or administrator since most are governed by a preconceived conceptual schema. This will be described in greater detail below.

The present focus on the regular class versus special class placement controversy and the nature-nurture issue can be traced to current social and educational events. New ideas about accountability for stimulating and enforcing effective programs are forcing educators everywhere to assess traditional programs more vigorously. The new expression of concern of parents and interested groups demanding some

results from extensive funds invested in innovative programs in recent years is creating an urgency among educators to supply good programs. The trend of the current nature-nurture controversy seems to indicate that perhaps program effectiveness is a straw in the wind since human behavior is predetermined and intractable. The implications for education are severe and the response and concern with Jensen's point of view is understandable.

The open versus closed programing issues seem to be related to a historical controversy in the behavioral sciences. Behavioral scientists have long debated over whether or not human behavior follows any principles or laws. If there are no universial laws of behavior, individuals contend, there is no purpose in using scientific methods of study nor in attempting to formulate precision programs based on principles of behavior.

The remainder of the chapter will focus on these topics, described by researchers as important issues in special education:

1. Special class versus regular class placement with its concomitant labeling and categorization;
2. Nature-nurture;
3. Open versus closed programing;
4. Manualism versus oralism;
5. Miscellaneous issues.

Regular Class Versus Special Class Placement

There is a whole class of people who have felt we haven't demonstrated the efficacy of special classes.

We have made pariahs out of certain children. . .maybe they would have been better off in a regular program.

These two quotes are exemplary of the range of emotion and attitudes researchers displayed over the regular class-special class placement issue. Some viewed the problem objectively not wishing to forego self contained classes without adequate evaluation and assessment. Others were openly incensed over potentional harm to children from placement in special education classes and were ready to disband the classes immediately.

The issue evolves from the need for large scale assessment and evaluation of special education programs. While program evaluation has always been a basic concern, it has by no means been carried out adequately.

As the result of the convergence of several trends, special educators are currently in the throes of taking a good hard look at the effectiveness of self contained special classes. The first trend is towards increasing sophistication in understanding the dynamics of human behavior. Professionals in special education, psychology, and psychiatry are aware now that human behavior is not determined only by an autonomous self directing ego or even by the unconsious mind (Freud's id).

In addition to these two forces, behavior of children and adults alike is shaped, to varying degrees, by the expectations and directives communicated by "significant others." The extreme example is the child who appears retarded because his older sibling is retarded. The behavioral expectations of the parent for the older child are transferred to the younger child. The younger child responds accordingly and mimics the behavior patterns of the sibling which are being reinforced by the parents. Similarly by placing a child in a special education program, individuals–whether peers or teachers–tend to activate all of modern society's stereotyped images of handicapped children and apply these images to the child. The behavioral expectations of both peers and professionals tend to reinforce behavior characteristics of stereotypes of special children. Thus, abnormality is often emphasized while the more normal responsive behavior of the child is extinguished gradually.

In addition to the possible insidious effects of the self contained program, more overt actions may occur to demoralize the special child. A child who is separated from his peers and distinguished in any way, particularly in a negative way, is frequently regarded with suspicion by the majority group. Further, any labels applied to the child are quickly snatched up by the majority group as a means to identify and sometimes poke fun at the child who poses a threat because he is mysteriously different. Labeling for diagnostic or administrative purposes both prejudges, sometimes erroneously, the child for the teacher or program administrator and leaks to the peer group, causing severe repercussions for the child who may be slightly different. Any labeling or categorizing, then, which tends to set attitudes or elicit behavioral expectations for the special child now are being questioned.

A second trend forcing the special class versus regular class placement issue is the recently revitalized nature-nurture issue (discussed fully below). It questions the tractability of humans. Many special educators have responded to this issue with the suggestion that perhaps special classes are specious. If it is true that human behavior cannot be appreciably altered, then perhaps energy and money invested in special programs could be better spent in other educational services.

A third trend supporting this issue is that special educators have begun to develop a wide range of intervention strategies to provide new options for programing. There is a decisive movement away from extremist treatment measures to modified plans. For example, institutionalization on the one hand and regular school on the other are no longer the only alternatives for the retarded child. Halfway houses to move the semi-dependent retarded child from the institution into the community are now considered viable treatment means. There is increased willingness and desire to

support the retarded as much as possible, enabling them to develop to their fullest potential with less eagerness to place ceilings on their achievement levels. It follows that as fewer assumptions are made about their potential greater educational opportunities are explored and attempted. Such changes in attitude have helped special educators to recognize that new and different treatment patterns are possible in many areas.

As a result, special educators are beginning to ask if the self contained classroom is the most effective treatment measure available for handicapped children in public schools. Since special or self contained classrooms were such a milestone in the history of the handicapped, symbolizing that these children were entitled to and could derive benefits from public education, special education has been locked into the pattern of using such classes. It is expected that *the concept of a range* of intervention strategies will promote major changes in special education programing.

Not all researchers viewed this issue as a simple one. For example, some researchers in discussing this controversy stated that, in their minds, there was still no doubt as to the need for special placement for the deaf, visually impaired, crippled, or trainable retarded. They expressed a concern that the concept to disband special classes be carried too far.

Others were concerned that the new approach to special education may be misunderstood. These researchers wanted to emphasize that there is a continuing need for special services to support handicapped children placed in regular classes. Proponents of regular class placement for handicapped children pointed out that special education skills needed to be used by the regular class teacher or as a supplement to regular class programing.

One researcher was of an entirely different orientation. He cautioned that perhaps special educators are being unrealistic; that the issue may be untenable.

This researcher pointed out that special educators have been struggling with administrators and legislators for years to get their programs implemented. How, he questioned, can special education justify a complete reversal in their recommendations and request that special programs be disbanded? He pointed out that some administrators who were originally difficult to persuade now have tremendous ego investment in these highly prized or exemplary programs and would not easily change their orientations. He also emphasized that many unions have as their raison d'etre the protection of regular class teachers from duties perceived as unduly burdensome. Such unions might therefore be an obstacle to major program changes which involved regular classroom teachers.

In summary, few special educators are saying that special class placement should be entirely disavowed. Most are desirous of close and thorough evaluation of the effects of special classes on children and an investigation of the alternatives to these classes.

Nature-Nurture Issue

The second most discussed controversy is the nature-nurture issue recently resurrected by Arthur Jensen. Researchers discussed this issue *with involvement*, concern, well defined positions, and greater willingness to defend their point of view.

The primary issue is whether or not behavior can be changed significantly through environmnetal forces or is largely immutable, predetermined by genetic structure. The premise that behavior is determined largely by the child's environment implies that educational intervention of sufficient magnitude can change behavior.

Jensen theorizes that intelligence is fixed genotypically. If any change in intellectual potential is to take place, educational intervention must occur before age 4. Thereafter, superficial changes may transpire but there will be no significant alteration of intellectual potential. Researchers discussed this issue as it related to special education in two contexts--nature-nurture and the disadvantaged, and nature-nurture and mental deficiency.

Nature-nurture and the disadvantaged. Many researchers felt the nature-nurture issue was particularly relevant to the problems of educational programing for the culturally different. In recent years great efforts have been expended for the development of programs designed for

disadvantaged populations. Yet many educators and parents have begun to realize that dramatic changes in children as a result of the new programs have not materialized. It was in this context that Jensen published his thesis suggesting that these children's developmental patterns were unchangeable. Parents and educators searching for plausible explanation for program failure could not ignore Jensen's suggestion.

Currently, considerable thought is being allocated to this problem and many related questions are being asked. One researcher even suggested that perhaps language patterns were fixed genotypically contrary to all contemporary theory.

The implications of Jensen's theory for curriculum development and special programs are obvious. Those educators who accept Jensen's thesis will be forced to turn their attention in curriculum design to a renewed emphasis on natural survival skills and coping techniques in place of fashioning curriculums after ideal academic objectives.

In addition to the well defined positions espoused by some researchers, others offered serious considerations. One suggested that even if research demonstrated that intellectual potential and behavior were indeed modifiable through environmental forces, education may not be in a position to accomplish the change. This researcher hypothesized that the systems influencing the individual child are so numerous and complex that education as a single system is too limited either in time or magnitude to counteract or compete with the many other systems. Others felt that perhaps nature-nurture was not a simple dichotomy. It may be possible, for example, that developmental patterns could be partially affected by genetic structure, leaving certain areas to be determined by the environment. Further, the extent to which genetics determine development may vary with the individual.

Nature-nurture and mental deficiency. Many researchers discussed nature-nurture as it applied to the developmental patterns of the educable mentally retarded and the implications for educational program design. The concept of familial retardation formulated by Edward Zigler was often discussed as a further complication of the nature-nurture controversy. According to Zigler's definition, children classified as familial retarded have the same developmental patterns as normal children and represent the lower tail of the normal curve for intelligence distribution in the population. Their developmental patterns, evolve at a slower rate. Educational programs for these children could follow the normal with slower pacing.

The opposite view is that educably retarded children have cognitive characteristics and developmental patterns totally different from those of the normal child. These patterns represent abnormality and are not part of the normal intelligence spectrum. This implies the need for the development of a special curriculum which is based on an understanding of these developmental patterns.

Closed versus open educational programing. A third set of issues clustered about a single theme. Researchers did not discuss the theme abstractly but rather used many sets of terms and specific levels of educational programing to describe their concerns.

The basic theme can be best described as closed versus open programing. To what extent, for example, can classroom teachers, program designers, or teacher trainers prescribe programs in advance and to what extent must these areas be kept open for spontaneous decision making? Chart 1 illustrates the many points of view and levels of approach taken by the researchers.

CHART 1

Closed Versus Open Programing

Terms	*Program Level*
Brain trainer vs skill trainers	Classroom techniques for brain-injured
Behavior modification vs process orientation	Classroom techniques for educationally handicapped
Open environment vs programatic	Classroom environmental stimuli
Process-oriented vs goal directed	Total classroom program – a posteriori design vs a priori design
Programatic vs teacher selected	Total special education program design
Eclectic teacher of the handicapped vs specialty area	Teacher training theory
Learning disability vs teacher disability	Whose problem–the teacher's or the child's

One researcher addressed the problem in terms of "brain trainers vs skill trainers." Essentially he discussed interventions used with children diagnosed as brain injured. He described two alternative treatment approaches for these children. One was to provide educational remediation which focused on known symptoms of brain injury once the child had been diagnosed as brain injured, e.g., perceptual motor deficits. A second approach was to direct attention towards remediating educational deficiencies, such as reading and handwriting, as they appear in the child.

This issue is somewhat complex since remediation techniques are often used for an educational deficit as well. For example, perceptual motor exercises are frequently considered part of remedial reading programs.

A second researcher addressed his remarks to the differences between behavior modification and the psychoeducational approach to classroom treatment of children. He described the objective of behavior modification as being the remediation of a child's inappropriate overt behavior. Psychoeducationists, however, seek to intervene at the source of the psychological problem which caused the aberrant classroom behavior. A behaviorist, for example, might use positive reinforcement to train a child to complete a specific academic assignment. The psychoeducationist, on the other hand, confronted with a restless child unable to work academically may be concerned with providing the child activities designed to build a positive self concept.

Another group of researchers identified the issue as one of process oriented versus goal directed roles of the teacher in the classroom. Should the classroom teacher, for example, design a comprehensive remedial program based on a diagnosis of the individual child or should the teacher design remedial techniques spontaneously in response to the student's changing behavior.

Another set of terms discussed were open environment versus programatic. Researchers described alternatives for the extent of structure in design and control of experimental stimuli provided for the child in the classroom. Programatic refers to highly selective stimuli on the basis of long range goals for the child. Open environment infers enrichment of the environment with all stimuli available and little or no selection on the basis of definitive program goals.

The same issue was discussed at the program planning level in terms of programatic versus teacher selected planning. Basically there are two different approaches which can be taken by administrators of special education programs. An administrator can designate classroom programs to be used uniformly by all special education teachers in their specific programs. A second option is to allow each individual teacher to design or plan his own classroom program. One modification of these two approaches might have teachers planning the program with the administrator.

At the teacher training level, researchers saw contending approaches. Should classroom teachers be well prepared in one methodological approach to teaching handicapped children or should they be exposed to several methodologies and encouraged to select those with which they are most comfortable?

A related issue in teacher training was the question of whether or not teachers should specialize and prepare to teach only one type of handicapped children. Two alternatives were suggested. One suggested that classroom teachers receive comprehensive preparation and be certified to teach in any classroom for exceptional children. A second took an entirely different approach. It suggested that teachers should be trained in new classroom skills such as diagnostic prescriptive or crisis teaching would permit them to serve all children exhibiting problems of school adjustment while maintaining these students in regular classes, except in such highly specialized areas as deaf or visually impaired.

At the extreme, researchers were suggesting that perhaps there were no learning disabilities only teaching disabilities. Researchers explained that the teacher from time to time encounters children who exhibit different learning styles and characteristics. The problem, as stated, was not that the child had a learning disability but that the teacher had not yet acquired the skills necessary to respond to that particular student's style. The solution then, to many problems of programing for the educationally different, would be for teachers to enlarge their armamentarium of skills to be able to respond to the vast range of children's learning styles, habits, and patterns.

Manualism vs *Oralism*

Educators of the deaf have been divided by a major issue for over 200 years. Should deaf children be taught to communicate with sign language or finger spelling, learn to speak and read lips, or learn a combination of the two approaches? The first US educational programs for the deaf subscribed to the manual method, introduced to this country by Gallaudet in 1816. Originally Gallaudet went to Europe to learn the oral method but when he approached the Braidwood school in England and told them he wanted to combine their oral method with a manual method, Braidwood refused him admission. He then studied the Frenchman Sicar's manual method. Later, in 1860, the oral method was introduced to the US by Horace Mann and Samuel Gridley Howe who similarly studied in Europe

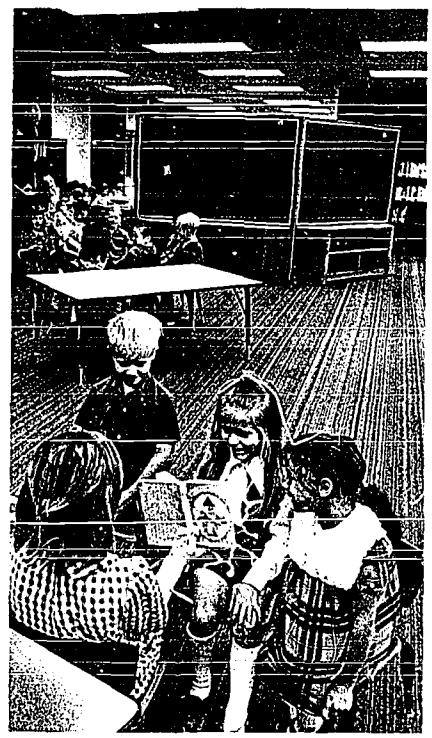
With strong advocates for each method, a true controversy soon emerged. Some individuals even today are attempting to establish communication between these two groups. The third group feels strongly that deaf children are better able to cope with the hearing world when

equipped with several optional communication skills. Nonetheless, many educators of the deaf adhere to a single approach, most with sound rationalization.

Miscellaneous Issues

Researchers discussed several issues related to current social problems and emerging themes in special education. There was critical contention over the implications for diagnostic and screening techniques and the relationship of psychological and neurological abnormalities to educational deficits. Some researchers reasoned that if special education classes were to concentrate only on the educational deficits of children rather than attack and attempt to ameliorate psychological problems or symptoms of brain injury, psychological and/or neurological diagnostic procedures would be unnecessary. In their places education would need to develop batteries of diagnostic skills themselves which could isolate educational problems.

One basis for this issue is the historical development of treatment measures and educational intervention and their relationship to each other. Potential change through educational intervention has been seriously underscored in the midst of treatment measures based on medical models and diagnoses. Many asked, for example, whether institutionalization met the needs of retarded children or whether this type of intervention was a carry over from an earlier period when physicians assumed responsibility for the placement and care of the retarded. The physician was the only screening and diagnostic net and made placement decisions primarily on the basis of physical abnormalties. Gross distinctions were made between those who were sufficiently retarded to require institutional care and those who could be maintained at home. The emphasis was on maintenance alone while the development of potential through education was not understood.



Another issue that reappeared several times revealed that special educators were perplexed over what the relationship of special education should be to minority populations. Some recognized that special education had the potential for making a contribution to these populations since many techniques developed by special education would be effective in educational programs for the culturally different. Others expressed a concern that special education was in a position to render damage through intervention since the impression might be purveyed that culturally disadvantaged children enrolled in special programs were abnormal. Researchers were aware that some accusation of racism had been levied against special education for both its reticence in a leadership role with minority groups and for those special class programs which had been established for inner city populations. Many have suggested that damage had been done to those children erroneously placed in classrooms for the educably retarded in inner city schools. It is understood now that while these children may have cognitive and language patterns or learning characteristics different from those students traditionally processed through the public schools, these differences do not indicate, however, retardation. These children require new educational approaches.

Summary

A review of the many issues set forth by researchers suggests that special educators are expressing a new vital concern with the effectivenes of their programs. Several areas were described as requiring new attention. Evident was an almost urgent concern with program assessment and evaluation in terms of program objectives and what and whose needs were being met. Little tolerance was expressed for techniques and approaches which have been adopted from other disciplines without modification, refinement, or tailoring

to meet the needs of exceptional children.

Secondly, while not stated overtly, inherent in the issues was the need for a full information base to facilitate sound evaluation and assessment. Research collaboration between special education and allied disciplines such as genetics, neurology, and developmental psychology is clearly needed for useful design of educational services. Basic or pure research is also needed to determine criteria for reasonable expectations for educational programs and services. Massive or significant behavior change may be totally unrealistic in light of research in genetics or sociology, for example. New, more realistic goals may have to be established for special classes or special educational services to help children adapt to their own levels of performance, rather than to an abstract goal established by program designers.

Some researchers felt that many of the issues cited were related to perceived failure of former programs. Perhaps these programs have not actually failed in light of previous goals. However, new success goals are being set by special educators. They have created discontent with past criteria for success. This is a wealthy reinforcer for the development of new more exciting programs. Nevertheless, caution should be exercised so that this criticism of special education will not hamper objectivity and creativity.

Overall, the issues cited as most important or hottest in special education indicate that an atmosphere conducive to change is abroad in special education today. The fact that special educators are willing to confront problems directly and take an accounting of the effectiveness of programs and techniques which may be part of the past and irrelevant in the face of the problems and knowledge of the 1970's is courageous and clearly the voice of optimism.

References

Jensen, A. Reducing the heredity-environment uncertainty: A reply. *Harvard Educational Review*, 1969, *39*(3), 449-483.

Zigler, E. Mental retardation: A continuing dilemma. *Science*, 1967, *155*, 292-298.

Computerized Information in Exceptional Child Education

Raymond S. Cottrell

Special education is experiencing a rapid growth and accumulation of information, as shown by an examination of six resource centers' holdings. These centers make searches of educational and medical material related to exceptional children. Information relevant to the field is stored in computer retrieval systems. The increasing number of projects, dissertations, and articles collected by these centers is evidence of the "information explosion" now taking place in special education.

The "information explosion," or perhaps more accurately the "paper" explosion, is well documented as we enter the decade of the 1970's. A variety of responses to this deluge is discernible. More journals are appearing, new book publishers are coming into the market, older publishers are enlarging and/or merging with companies in other fields of business, and both private enterprise and various parts of government are establishing information files.

A sizable amount of both federal and state government funds has contributed to financing the "paper" explosion, concomitant with a growth of knowledge in various fields. It is especially noticeable in special education. Monies have stimulated increases in numbers of professional personnel, numbers of programs and children receiving services, and research. Fewer children are being excluded from some kind of educational service.

In addition to its unique position as a field of special study within education, special education also draws heavily from many other fields of study. These resources include psychology and its many facets, sociology, engineering, biochemistry, and medicine.

Those in the field of special education who are concerned directly or indirectly with adding to knowledge, providing services, and/or training personnel must find or have found for them ways of coping with the volume of information available. As is becoming increasingly common, the computer is invaluable in search and retrieval of information.

Any search for information may be analyzed in a manner very similar to that involved in decision making based on statistics and probability. The analogy is not perfect but may be useful. (See Table 1)

Decisions usually are of necessity based on a sample rather than on the total population. Hypotheses concerning the population are tested using information obtained from a sample of that population. If the total population were examined, the accuracy of any hypothesis could be determined. A decision to

TABLE 1
Hypothesis Decision Making

		Hypothesis	
		TRUE	FALSE
Decision	ACCEPT	+	-(II)
	REJECT	-(I)	+

TABLE 2
Information Retrieval

		Applicable	
		YES	NO
Retrieval	YES	Good	Bad, Time Wasted
	NO	Bad, Information Missed	GOOD

accept or reject any hypothesis on information derived from a sample allows for four possible – two "good" and two "bad" – decisions. Actually carrying out the decision making reduces the four possibles to two – one "good" and one "bad." The "good" decisions are acceptance of a true hypothesis and rejection of a false one. The "bad" include what have come to be called Type I and Type II errors – rejection of a true hypothesis and failure to reject (i.e., acceptance of) a false hypothesis.

When the need for particular information arises, the situation calls for identifying and retrieving as much of all applicable information as possible. Combining the applicability with whether or not particular information is retrieved allows for four conditions – two "good" and two "bad." Of course, one would like applicable information retrieved and all inapplicable information (i.e., noise or garbage) ignored. However, inapplicable information may be retrieved and applicable information may be missed. Unfortunately, unlike decision making using statistics, both errors can (and undoubtedly do) occur concurrently. This applies to the subsequent retrieval of information from any particular base. If, as is usually the case, a decision of some kind must be made on the basis of the information available, then the situation becomes comparable to statistical decision making and its attendant potential outcomes.

Because potentially relevant or applicable information may come from a wide variety of sources and take many forms, the primary task of those operating information centers is to include as much as possible of the appropriate information. Then they must develop procedures for retrieving that which is most useful in response to typical queries. The foregoing describes the frame of reference of this investigator as he undertook the following analysis.

A number of information sources were examined in varying degrees of detail to determine their potential applicability and contribution to special education. Differing audiences within special education were considered in the review undertaken. The following sources were included:

1. The Council for Exceptional Children's (CEC) Information Center on Exceptional Children;
2. Project Resume Information System (PRIS) of the BEH;
3. Direct Access to Reference Information, a Xerox service (DATRIX) of University Microfilms (a Xerox company);
4. Science Information Exchange (SIE);
5. Neurological Information Network of the National Institute of Neurological Diseases and Stroke (NINDS);
6. Medical Literature Analysis and Retrieval System (MEDLARS) of the National Library of Medicine.

An overview of each source as well as some observation of the results of the contacts made will be noted in the following by file summary. It is anticipated that further exploration of certain files will be undertaken.

CEC Information Center on Exceptional Children

Those in the field of special education undoubtedly know that the Information Center includes within itself one of the clearinghouses in the Educational Resources Information Center (ERIC)

system. In addition to contributing to *Research in Education (RIE)* and to *Current Index to Journals in Education (CIJE)*, the Information Center publishes *Exceptional Child Education Abstracts (ECEA)*. Only the latter was included in this analysis (Volume 1 and Volume 2, No. 1).

It is difficult to tell whether frequently used descriptions accurately reflect the literature being abstracted or rather point out limitations of the thesaurus and/or viewpoints of the abstractors. Over 40 percent of the 2,100 abstracts included in Volume 1 dealt with items classed as exceptional child research. Within this group the most frequently used descriptive terms or phrases were (in descending frequency): mentally handicapped, educable mentally handicapped, aurally handicapped, tests, children, emotionally disturbed, identification, academic achievement, cognitive processes, deaf, institutionalized persons, learning difficulties, research reviews, speech handicapped, teaching methods, testing, and visually handicapped. The next most popular terms included: achievement, adjustment to environment, adolescents, age differences, behavior, behavior change, blind, clinical diagnosis, environmental influences, etiology, gifted, learning perception, program evaluation, reading, reinforcement, and trainable mentally handicapped. Less popular, but nevertheless frequently used terms included: adults, articulation, speech, attitudes, auditory discrimination, behavior rating scales, disadvantaged youth, incidence, individual characteristics, intelligence differences, intelligence tests, language development, learning characteristics, minimally brain injured, personality, physically handicapped, preschool children, sex differences, special classes, speech therapy, student evaluation, test results, visual perception, and vocational rehabilitation.

The preceding descriptors which have been most frequently used ($N = 57$) include all the traditional categories of children as well as terms which relate to such currently popular areas as behavior modification and early childhood education. However, the terms in the list are so varied as to be subject to selection and interpretation biases brought by each reader.

Project Resume Information System

PRIS is essentially an information management system using the Basic Indexing and Retrieval System (BIRS) on a data base consisting of resumes of projects funded by the Division of Research, BEH. The system is maintained both in Washington and Michigan. A similar system has been established for projects monitored by the Division of Educational Services, BEH.

The total file consists of 404 projects —293 completed prior to March 1, 1970, 14 scheduled to be completed between March 1 and May 31, and 97 to be continued beyond June 1. About 70 percent have been or are being conducted by colleges and universities. Schools conduct the next highest percentage (about 10 percent), just slightly more than state agencies, professional organizations, hospitals or clinics, and research organizations (4 to 5 percent each). The remainder (less than 3 percent) is carried out by private industry and other organizations.

The federal legislation which authorizes the support of research requires categorization by area of handicap. Following is the breakdown by category. The total is greater than 404 because 47 projects were classified under two or more categories, the R&D Center at Columbia University using the largest number of categories (eight).

Category	*Number of projects*
Audiology	15
Hearing Impaired	81
Speech Impaired	42
Visually Impaired	40
Crippled	10
Other Health Impaired	37
Emotionally Disturbed	44
Mental Retardation	134
Multiply Handicapped	19
Special Education	58
Total	480

A trend may be noted in that 45 of the 97 projects scheduled for completion after June 1 were classified as special education, multiply handicapped, or used two or more of the available categories.

DATRIX

DATRIX is a relatively new service which attempts to provide improved access to doctoral dissertations. Essentially it does a search of titles of dissertations and identifies key words therein, in lieu of assigning descriptors. Coordinate searching, combining two or more key words and perhaps excluding other key words, is the only way to narrow or focus searches on particular topics. Costs are paid by the users of DATRIX.

Eight distinct searches were requested from DATRIX. Responses, in terms of dissertations cited, were: 0, 1, 7, 34, 40, 104, 200, and 460. Both frustration extremes, too few and too many potential items, were encountered by this user. There should have been a number of relevant citations for the first two searches. The first search was an attempt to prepare a listing of most special education dissertations by using as key words exceptional, handicapped, or special, and child, children, educable, auditory, mental physical, speech, visual, social, student, or pupil(s). It was anticipated that many dissertations, rather than the zero reported, would be retrieved.

These outcomes were a direct result of not knowing how best to use DATRIX, despite the fact that the author was not a neophyte in use of information resources. Rather, some of the information used in framing the requests was no longer accurate, the indexing and retrieval

system used was not very sophisticated, and the information base was not sufficient. This is perhaps an opportune time to point out that to conduct a sophisticated information search, either the information base and system used or the user must be very sophisticated. DATRIX requires the user be sophisticated while BIRS, used by both the CEC Information System and PRIS, does not since it is a more sophisticated system.

Every effort should be exerted to make the CEC Information Center a one stop center. Movement toward this goal could be made by adding to the information base all doctoral dissertations in special education, plus relevant additional dissertations from other fields. It would concomitantly make it unnecessary for the consumer or user to attempt to get information from DATRIX, except in special cases.

Science Information Exchange

Science Information Exchange purports to be a national registry of research that is in progress. It is a government financed service, operated as part of the Smithsonian Institution. The data base covers basic and applied research in life, physical, social, behavioral, and engineering sciences.

A request to describe ongoing studies in the education of handicapped, gifted, academically talented children resulted in provision of over 300 notices. These had not been screened by SIE. Apparently OE supported projects are included by copying the Educational Project (EP) information from *Research in Education*. Periodic updating is attempted. However, not all projects are necessarily included. For example, only one of the four Special Education Instructional Materials Centers (SEIMC) funded in March 1967 was listed. The SEIMC at the University of Wisconsin, first funded in 1964, was also omitted. All the other centers were listed, the CEC Information Center being listed twice. Other instances of failure to remove earlier notices after updating were observed.

Neurological Information Network

The National Institute of Neurological Diseases and Stroke (NINDS), formerly the NINDB (National Institute of Neurological Diseases and Blindness) and one of the National Institutes of Health, sponsored the establishment of four specialized information centers within its domain. They are:

1. Brain Information Service, at UCLA;
2. Information Center for Hearing, Speech, and Disorders of Human Communication, at the Johns Hopkins University;
3. Parkinson's Disease Information and Research Center, at Columbia University;
4. Vision Information Center, at The Francis A. Countway Library of Medicine in Boston, Massachusetts.

The last center is the victim of fiscal shortages in the National Eye Institute, and is now in a phasing out process. It was transferred in 1968 at the time NINDB became NINDS and the National Eye Institute was created. Two other centers indicated that education was not included within their scope.

As might be expected based on the specialties covered, the center at Johns Hopkins responded with a listing of 56 bibliographies, some of which appear relevant to special education. The CEC Information Center will acquire these and add the relevant bibliographies to its data base. Communication between these two centers has been established for some time.

Medical Literature Analysis and Retrieval System

MEDLARS is a computer based system operated by the National Library of Medicine. The data base, while large (currently in excess of 1,000,000), consists entirely of citations from biomedical periodicals. Searches are normally limited to a period of 2½ to 3½ years.

The search requested as part of this survey resulted in the citation of 429 articles since January 1967. A few of the citations were from 1966 published articles. Based on an examination of the citations, and lacking referral to the original articles, most if not all of the citations appeared to be relevant to special education. It should be noted that journals cited include *Exceptional Children, Special Education, Mental Retardation,* and *American Journal on Mental Deficency.* Foreign journals are also included.

Conclusions

It appears that the CEC Information Center, including the ERIC Clearinghouse on Exceptional Children and the entire ERIC system, are combining to make a one stop information retrieval center a very real possibility for the heterogeneous field of special education and its varied professional personnel. The combination of *RIE, CIJE,* and *ECEA* should make it possible for the practitioner who has access to the three journals to have access to most potentially relevant information. This will be especially true if the CEC Information Center adds relevant doctoral dissertations to it's data base, while continuing to maintain liaison with the Information Center for Hearing, Speech, and Disorders of Human Communications.

The researcher in special education may have to go beyond a one stop center and include SIE and perhaps DATRIX, especially if dissertations are not added to the data bases of all ERIC clearinghouses. Access to PRIS will presumably be available through CEC. MEDLARS and the National Neurological Information Centers may not need to be contacted, except where medically related topics take priority over educationally important aspects of a study.

Recent Trends in Research with Exceptional Children

Alexander J. Tymchuk

The impetus for the present study came from a manuscript by Gardner, Solomowitz, and Saposnek (1969) in which the authors reviewed trends in learning research with the retarded and made suggestions for future areas of emphasis. The study offered similar suggestions for research with exceptional children, after an analysis of research in subareas of exceptionality. In addition, it was felt that such an analysis could offer insight into the emphases of researchers for the past two decades and perhaps indicate the manpower distribution. These data could result in suggestions for future manpower needs.

Method of Selection of Articles

The medical library at Children's Psychiatric Research Institute provided an ideal facility for this research since the library subscribes to all journals in which articles (medical or behavioral) on exceptional children would be published. A beginning was first made by researching the author's extensive reprint files. Bibliographies and reference lists were copied, cut, and taped to a master list. Then every issue of each journal was researched. Although some journals had only been subscribed to recently, the use of the reference lists provided an excellent source for earlier articles.

On checking the journals indexed by *Current Index to Journals in Education*, it was found that this paper reviewed all seven journals which dealt specifically with exceptional children except the gifted and the mentally retarded. All issues of five of these journals *(Exceptional Children, Journal of Learning Disabilities, Journal of Special Education, Mental Retardation*, and *Rehabilitation Literature)* were reviewed. The other two, *American Journal of Mental Deficiency* and the *American Journal of Orthopsychiatry* were reviewed from 1950.

Also included in the index were 13 other journals that contained articles dealing with exceptional children. The last 10 years of these journals were reviewed for this article. There were six other journals which are not reviewed for the Index, but which dealt primarily with exceptionality and from which all issues were reviewed for this article. These included *Academic Therapy Quarterly, Developmental Medicine and Child Neurology, Journal of Child Psychology and Psychiatry, Journal of Mental Deficiency Research, Journal of Mental Subnormality*, and *Journal of Nervous and Mental Diseases*. The communications from abstracting services were also reviewed including *Communication Disorders,*

TABLE 1

Number and Percentage of Articles Classified According to Major Categories and to Period of Time

	Pre-1950		1951-1960		1961-1968		Total	
Categories	*N*	*Percent*	*N*	*Percent*	*N*	*Percent*	*N*	*Percent*
General description	46	24.73	147	36.57	448	35.05	641	34.35
Etiology	60	32.26	99	24.63	183	14.31	342	18.33
Diagnosis	44	23.66	73	18.16	219	17.14	336	18.01
Treatment	35	18.82	75	18.68	356	27.86	466	24.97
Effects of treatment	1	0.54	8	1.99	72	5.63	81	4.34
Total over years	186	9.97	402	21.54	1,278	68.48	1,866	

Current Contents, Exceptional Child Education Abstracts, Excerpta Medica Series: Pediatrics and Neurology and Neurosurgery and Psychiatry, Index Medicus, International Neurosciences Abstracts, Mental Health Digest, Mental Retardation Abstracts, Perceptual-cognitive Development, Psychological Abstracts, and *Research Relating to Children.* Finally, bibliographies from related fields were reviewed (Birch, 1964; Fries, 1968; Krug, 1967; L'Abate & Whitaker, 1967; Louttit, 1966; Rawson, 1961; Wepman, 1962).

Once the list was completed, the bibliographies by Goldberg (1967) and Edgington and Clements (1967) were consulted and it was found that within the limits of this research all articles pertaining to this research were already included. This fact provides some validation for the selection procedures of the present research. However, despite this thorough review of the pertinent literature a slight bias in favor of more recently published articles still exists. This bias should be kept in mind when considering the results reported here.

Finally, headings were selected under which these articles could be subsumed. These headings were changed in minute aspects and the final version appears in Table 2. The entire article selection was a 2,100 item bibliography from which this paper derived. Not all articles in the bibliography are included here. These are primarily articles dealing with the retarded. No articles pertaining to the gifted are included. In this respect this research is limited. No studies with animals or adults are included.

Results

Table 1 contains the number and percentage of the total number of articles within three rather arbitrary time periods: 1961-1968, 1951-1960, and pre-1950. This collapsing across years was deemed necessary for ease of presentation, but the original frequencies are for years ranging from 1937 to 1968. These frequencies are available from the author.

By looking first at the total number of articles under each major category, one sees that an inordinate number has been concerned primarily with description of the various phenomena of exceptionality. A total of almost 70 percent of the articles surveyed dealt with description, etiology, and treatment. Conversely, only 30 percent dealt with treatment. Of the total, only 4 percent dealt with determining the effects of treatment. The disproportionate amount of effort which these descriptive articles represent suggests an extremely superficial approach to exceptionality in the past. Admittedly, we must understand the phenomena before we can treat them but this trend is similar over the previous two decades. Articles dealing with treatment and the measurement of this treatment are increasing, but this increase is belated and small.

The interest in exceptional children has grown tremendously over the three periods. Ten percent of the articles before 1950, 20 percent between 1951 and 1960, and 69 percent in the last period pertained to exceptionality. Although this finding suggests the interest is a recent development, it may also be a result of increased numbers of professionals in the area and increased funds available for research.

Table 2 contains a complete breakdown of the main categories. Perusal of this table indicates distinct periods of emphasis for certain areas of research. Learning disabilities, minimal cerebral dysfunction, and hyperactivity are characteristic of the modern period within the first category. Cerebral palsy articles, however, peak in the middle period indicating perhaps a change in terminology and a clarification of one particular aspect of exceptionality. Articles on dyslexia and aphasia predominate within each period indicating a perennial interest and suggesting the complexities of these areas.

The medical sciences still offer the exceptional child, particularly the severely disabled, a great deal in terms of basic biological research and pharmacological control of disruptive symptoms. However, with the advent of behavior modification techniques, educators and psychologists are increasingly making behavioral control their domain as well. This is partly because the symptoms of exceptionality are behavioral and should be treated behaviorally. The number of psychological and educational articles far outnumber the medical ones dealing with exceptionality. This point should be emphasized when leadership and funding are at issue.

The use of formal behavior modification techniques and the interest in the culturally disadvantaged are both distinctly modern. This also seems to be true for motor training. No perceptual motor articles were listed in the early period and only 4 in the middle period. Training in reading abilities, however, is emphasized in each era. Within the treatment category, however, articles are primarily of a general nature rather than specific. This finding suggests that either it is difficult to separate basic abilities within academic subjects or that this area has been neglected.

TABLE 2

Number of Articles Classified According to Subcategories

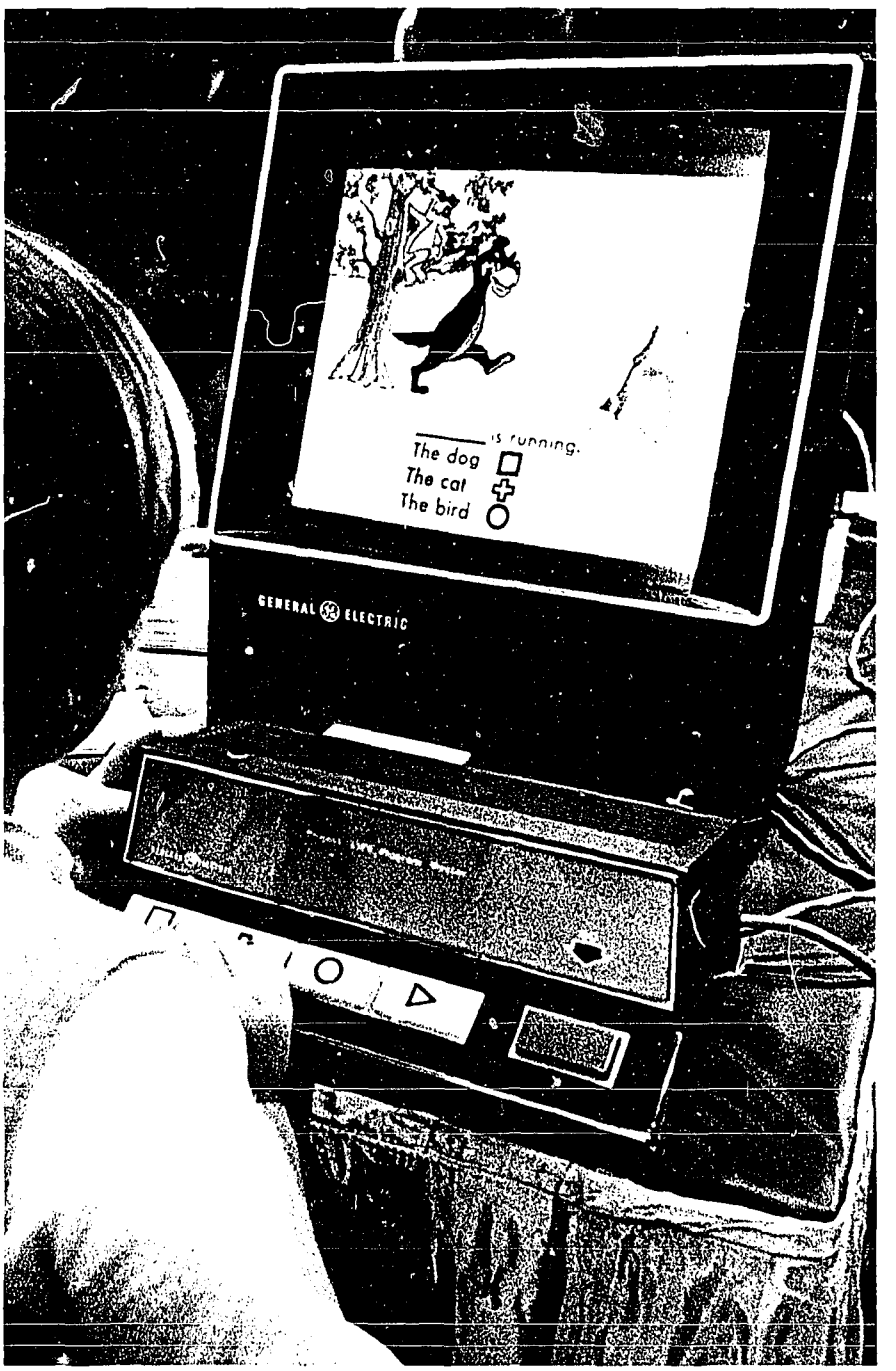
Categories	Pre-1950		1951-1960		1961-1968		Total	
	N	*Percent*	*N*	*Percent*	*N*	*Percent*	*N*	*Percent*
General description								
Children with learning disabilities	2	4.35	17	11.56	129	28.79	148	23.09
Minimal cerebral dysfunction	4	8.70	22	14.97	75	16.74	101	15.76
Children with aphasia	15	32.61	35	23.81	68	15.18	118	18.41
Dyslexia	15	32.61	35	23.81	129	28.79	179	27.91
Hyperactivity	1	2.17	11	7.48	32	7.14	44	6.86
Cerebral palsy	9	19.57	27	18.37	15	3.35	51	7.96
Totals	46		147		448		641	
Etiology								
Neurologic-pediatric	1	1.67	11	11.11	22	12.02	34	9.94
Prenatal-perinatal	8	13.33	23	23.23	24	13.11	55	16.08
Brain damage and behavior	11	18.33	31	31.31	28	15.30	70	20.47
Educational								
General articles	15	25.00	13	13.13	40	21.86	68	19.88
Visual-auditory components	13	21.67	12	12.12	49	26.78	74	21.64
Handedness, dominance, letter confusion	12	20.00	9	9.09	20	10.93	41	11.99
Totals	60		99		183		342	
Diagnosis								
Neurologic electroencephalography	16	36.36	24	32.88	52	23.74	92	27.38
Psychological	25	56.82	45	61.64	143	65.30	213	63.39
Educational	3	6.82	4	5.48	24	10.96	31	9.23
Totals	44		73		219		336	
Treatment								
Pharmacological	8	22.86	32	42.67	56	15.73	96	20.60
Educational								
General	4	11.43	9	12.00	94	26.40	107	22.96
Reading	22	62.86	24	32.00	83	23.31	129	27.68
Motor	1	2.86	6	8.00	35	9.83	42	9.01
Perceptual motor	-		4	5.33	27	7.58	31	6.65
Behavior modification	-		-		36	10.11	36	7.73
Cultural disadvantaged	-		-		25	7.02	25	5.36
Totals	35		75		356		466	
Effects of treatment	1		8		72		81	
Totals over years	186		402		1,278		1,866	

Discussion

The present review of areas of interest in exceptional children is unique in that no other analysis has been undertaken, though large data gathering and information processing facilities are available.

Comments regarding trends in various areas of research are usually made within a limited field of reference. A detailed analysis of trends is necessary and useful and should be done in other areas of research as well. The results of the present study indicate an inordinate concern with description rather than with treatment of exceptionality. An analysis of this sort would have shown this to be the case years ago and perhaps attention would have shifted away from description to treatment. Within other categories it is of interest to note various peak periods of incidence for certain areas and a waning of interest during other periods. Perhaps these fluctuations could be associated with changes in social interest and consequent changes in funding policy, or they may be due to reclassifying or changing the name of old phenomena.

Although the data are not presented, it is of interest to note that various emphases are again becoming prominent after a relatively tranquil decade or two. Specifically, interest in the 1930's was with the specifics of academic problems. Researchers, such as Strauss, wanted to tease out relationships so that the various aspects of reading problems, for example, could be understood and remediated. We are just now returning to this teasing out of relationships both within diagnosis and treatment. A further example of a revival of interest is in the search for subtle sequelae to prenatal and perinatal difficulties. This whole area has blossomed tremendously with studies in nutrition and in the shift of attention to the culturally impoverished, and yet it has virtually lain dormant. Perhaps a careful perusal of the literature of earlier years may aid present research.



APPENDIX I – RESEARCH TRENDS IN MENTAL RETARDATION LITERATURE

Since the original article was written, it was requested that a similar analysis be done with the mental retardation literature. That is a tremendous task and is being done now. However, in terms of the present analysis, the author, as the editor of the *Peabody Bibliography in Mental Retardation*, had available five issues containing 665 references spanning the period of January through September, 1970. These references came from 100 journals and represented an extremely thorough review of the field of mental retardation and as such could give a glimpse at the whole field. Copies of the individual bibliographies are available from the author and a listing of the journals reviewed appears in each issue.

The number and percentage of articles dealing with mental retardation classified according to category are contained in Table 3. The categories here are different from the ones used in the main article so that different points must be raised. One case in point is similar, however. In both reviews, the evaluation of the effects of training accounts for only a small percentage of the total. The main point to be made is that medical articles account for 40.2 percent of the total number. This is so despite the fact that mental retardation is largely a behavioral phenomenon. Interestingly, the social concomitants of mental retardation are studied little. Social studies of retardation are desperately needed if the move towards public assimilation of the retarded is to continue successfully.

Although the reader does not have the benefit of these data, it is interesting to report that there are trends evident in articles appearing within mental retardation journals. The *American Journal of Mental Deficiency*, for example, is primarily psychological with few educational, social, or medical articles. The medical journals have few behavioral studies. *Exceptional Children*, surprisingly, has few articles on mental retardation. These

TABLE 3

Number and Percentage of Articles, January through September 1970, Dealing with Mental Retardation, Classified According to Category

Categories	*N*	*Percent of total*
Psychological	144	21.7
Learning	47	7.1
Developmental	27	4.1
Psychodiagnostic	50	7.5
Other	20	3.0
Educational	160	24.0
Behavioral modification	37	5.5
Special education	47	7.1
Vocational rehabilitation	14	2.1
Effects of treatment	34	5.1
Language development	11	1.6
Motor development	7	1.0
Other	10	1.5
Social	79	11.8
Culturally Disadvantaged	17	2.5
Institutions	24	3.6
Parents and siblings	14	2.1
Recreation	5	0.7
Community	17	2.5
Other	2	0.2
Medical	268	40.2
Genetic	84	12.6
Biochemical	55	8.3
Neurological	50	7.5
Electroencephalogram	10	1.5
Theoretical	13	1.9
Nutrition	6	0.9
Other	50	7.5
Other	14	2.1
Total	665	99.8

trends are interesting because there is a definite trend to interprofessional collaboration. Yet evidence of this collaboration has not yet been seen in the journals. Professions stick to their own journals even within such a heterogeneous concept as mental retardation.

References

Birch, H. *Brain damage in children: The biological and social aspects.* Baltimore: Williams & Wilkins, 1964.

Edgington, R., & Clements, S. *Indexed bibliography on the educational management of children with learning disabilities.* Chicago: Argus Communications, 1967.

Fries, K. *A classified annotated bibliography of behavior modification with children and retardates.* Atlanta: Georgia State University, 1968. Mimeo.

Gardner, J., Solomowitz, S., & Saposnek, D. Trends in learning research with the mentally retarded. Paper presented at Conference on Mental Retardation, Gatlinburg, Tenn., *1969.*

Goldberg, I. *Selected bibliography of special education.* New York: Teachers College Press, 1967.

Krug, R. *A bibliography of behavioral concomitants of cerebral dysfunction in man, 1955-1966.* University of Oklahoma Medical Centre, 1967.

L'Abate, L., & Whitaker, O. *An annotated bibliography of behavior modification with children and retardates.* Atlanta: Georgia State University, 1967. Mimeo.

Louttit, R. *A bibliography in neuropsychology: Reviews and books, 1960-1965.* Public Health Service Publication No. 1473, Public Health Bibliography Services No. 63, National Institute of Mental Health. Chevy Chase, Md., 1966.

Rawson, M. *A bibliography of the nature, recognition, and treatment of language difficulties.* Pomfret, Conn.: The Orton Society, 1961.

Tymchuk, A. J., & Knights, R. M. *A two thousand item bibliography: The description, etiology, diagnosis and treatment of children with learning disabilities or brain damage.* London, Ontario, Canada: Children's Psychiatric Research Institute, 1969.

Wepman, J. *A selected bibliography on brain impairment, aphasia and organic psychodiagnosis.* Chicago: Language Research Association, 1962.

A Review of the Content in Basic Speech and Hearing Periodicals

Vilma T. Falck

Despite reluctance on the part of many professionals to modify the general descriptive label "speech and hearing," there is no doubt that marked changes have occurred within this traditional area of exceptionality. Generally changes involve expansion of concerns so that the broader label "communicative disorders" more appropriately describes the field. It is difficult to understand the reluctance of the professional group, as a whole, to use a title which would communicate to the lay and professional population the areas of concern and competency. This is particularly surprising when one observes scattered liberally throughout the professional literature of the past ten years direct reference to "disorders of communication"–speech, hearing, language, learning. (This is also apparent in changes of training program departmental labels as well as clinical center designations.)

In short, a review of the content in basic speech and hearing periodicals reveals trends and patterns which signify substantial expansion beyond traditional speech (articulation, fluency, and voice) and hearing (impairment of receptive capacity) disorders. Indeed, "speech and hearing" as an area of concern now includes educational models, provision for services, and research in all phases of human communication.

A review of the literature has been made which included the following:

1. *Asha*, the professional journal of the American Speech and Hearing Association, from January 1965 to May 1970. This has been done by grouping articles and reports by rather broad categories. Titles, dates of issue, and authors are listed in groups to reflect areas in which there was professional interest.
2. *Journal of Speech and Hearing Research.* Various summary methods were used: (a) The 1965 articles are grouped into categories in order to indicate trends and areas of effort; (b) A summary of annual reviews of *JSHR* which were published in 1966 and 1967 is also included; and (c) In addition, a summary of viewpoint articles which were published in the 1970 issues of *JSHR* to date has been included. The viewpoint articles were published to present an overview of the progress established in certain subareas within the professional speech and hearing areas during the past ten years.
3. *Journal of Speech and Hearing Disorders.* Summaries and lists of articles which have appeared in *JSHD* from February 1965 to November 1969 are included. By summarizing briefly the content of each published article and grouping chronologically the articles into categories, it was possible to see trends more easily and learn of the work reported in specialty areas. Because *JSHD* is the American Speech and Hearing Association journal which discusses application of research findings, it seemed appropriate to spend most time in this review. *JSHD* reflects what is being done in the field, what points of view are current, and theoretically should include articles which are most interesting to the majority of professionals and which are most likely to exert influence.

ARTICLES FROM *ASHA* JANUARY 1965 TO MAY 1970

The following is a breakdown of articles which appeared in *Asha*, January 1965 - May 1970, reflecting areas in which there was professional interest:

Public School

Role of Public School Speech Clinician. Ainsworth, Dec. 1965
Trends in Public School Speech Therapy. Haines, June 1965
Case Selection in the Schools. Pronovost, May 1966
Supervised School Experiences for Student Clinicians. July 1967
Some Recommendations for Supervised School Experience for School Clinicians. Rees & Smith, Mar. 1968
An Investigation of Attitudes of Speech Clinicians in Public Schools. Weaver, Aug. 1968
Recommendations for Housing of Speech Services in the Schools. Apr. 1969
Public School Speech and Hearing Programs. O'Toole & Zaslow, Nov. 1969
Special Training for Supervisors of Student Clinicians. July 1969
Professional Negotiations and the School Speech and Hearing Clinician. Gross & Fichter, Mar. 1970

Publication Ease and Communication Among Professionals

Information Retrieval Vocabularies in Speech and Hearing. Kavanaugh, Dec. 1965
Problems of Terminology. Laguite, Riviere, & Fuller, May 1965
Survey of Attitudes toward the Training and Employing of Physically Handicapped Speech Pathologists and Audiologists. O'Neill, Apr. 1966
Computer Simulation of Therapy - Client-Clinician Match. Stunden, Apr. 1966
Vocational Interests of Women in Speech Pathology and Audiology. Campbell, May 1967
Vocational Interest Patterns of Speech Pathologists and Audiologists. Martyn et al., June 1967
Attitudes of Audiologists and Teachers of Deaf. Green, June 1967
Report on Recruitment. July 1967
Investigation of Membership Attitudes toward Publications of ASHA. Castle et al., Aug. 1967
Supportive Personnel in Speech Pathology and Audiology. Irwin, Sept. 1967
Supportive Personnel as an Extension of PROFESSIONAL Worker's Nervous System. Ptacek, Oct. 1967
Use of Nonprofessionals Widely Discussed. Nov. 1967
Investigation of Salaries of ASHA Members on Doctoral Level 1966-67. Castle et al., Mar. 1968
Characteristics and Salaries of ASHA members in Clinics and Centers. Castle et al., Oct. 1968
Personal Incomes in the Speech and Hearing Profession—Academic Faculty. Feb. 1969
Personal Incomes in the Speech and Hearing Profession—School Personnel. June 1969
Investigation of Characteristics and Needs of Non-Practicing Members. Castle et al., June 1968
Professional Education in Speech Pathology and Audiology. Bloomer, June 1968
Private Practice in Speech Pathology. Knight, Oct. 1968
Social and Political Involvement of ASHA. Taylor, May 1969
Role of ASHA in Social, Political and Moral Activities. Michel, May 1969
Speech Pathology and Audiology in India. Stewart and Kapur, Jan. 1970
Reading of Journals by Speech Pathologists and Audiologists in Ohio. Ptacek, Feb. 1970
ASHA's Response to Social, Political and Moral Concern within the Profession. Apr. 1970

Clinical Practices

Supervision of Clinical Practice. Van Riper, Mar. 1965
Training of Clinical Personnel. Ward & Webster, Feb., Apr. 1965
Child Guidance Practicum for Speech Pathology Students. Gluck, Feb. 1965
Diagnostic Services in a Training Center. Van Riper & Dopheide, Feb. 1966
Pilot Speech and Language Program. Doob, Aug. 1967
Student Attitudes toward the Therapeutic Process. Ingram & Stunden, Nov. 1967
A Symposium: Improving Supervision of Clinical Practicum. Miner et al., Dec. 1967
Clinical Training for Full Time Clinical Service. Darley, Apr. 1969
Guidelines on the Role, Training, and Supervision of the Communication Aide, Feb. 1970

Geriatric Audiology and Speech Pathology

Diagnostic and Rehabilitative Aspects. Nov. 1965
Family Counseling with Relatives of Aphasic Patients. Derman, May 1967
Rehabilitation Services for Speech, Hearing and Language Disorders in an Extended Care Facility. Walle & Newman, June 1967
Respiratory Physiology: Implications of Current Research. Hardy, May 1968
Summary of ASHA's Position and Recommendations Regarding Medicare. Nov. 1968
Speech Pathology Services in a Home-Health Agency: Visiting Nurse Association of Detroit. Rolnick, Oct. 1969

Mentally Ill and Mentally Retarded

A Statewide Speech and Hearing Program for the Mentally Retarded and Mentally Ill. Rittmanic, May 1966

Speech Defective Children

Social Position of Speech Handicapped. Nov. 1965
Mental Health Aspects of Cleft Palate - Review of Literature Intended for

Parents. Wylie & McWilliams, Feb. 1966
Problems in Articulatory Research: Methodology and Error. Sommers, Oct. 1967
Training of Students in Management of Disorders of Voice. Brodnitz, July 1966

Language/Language Handicaps

Language in the Economically Disadvantaged Child. Baratz, Apr. 1968
Theories of Language Acquisition and Practices in Therapy. Menyuk, May 1968
Behavioral Phonetics. Winitz, May 1968
Role of the Profession of Speech and Hearing in Management of Language Problems. Marge, May 1968
A Diachronic Examination of the Linguistic Universal. Houston, June 1968
Some Current Trends in Aphasia Rehabilitation. Holland, Jan. 1969
Language and Cognitive Assessments of Negro Children. Baratz, May 1969
Recent Studies in Language Acquisition. Lee, June 1969
Recent Developments in Psycholinguistics. Tikofsky, July 1969
Subvocal Speech and Speech. Locke, Jan. 1970
Funcional Analysis Approach to Speech and Language. Monograph by Girardeau & Spradlin, Jan. 1970

Audiometry

Inconsistency among Audiometric Zero Reference Levels. Carhart, Mar. 1966
An Analysis of Patient Attitudes and Reactions to a Clinical Hearing Aid Selection Program . Rossi & Harford, July, 1968
The American Hearing Aid User. Stutz, Oct. 1969 (report of 1968 data)
Acoustic Impedance of Pathological Ears. Zwislocki & Feldman Monograph rep., Jan. 1970
The Development of Hearing in Man. Eisenberg, Mar. 1970
Symbols in Pure Tone Audiometry. Perkins et al., Apr. 1970

Deaf Children

Word Associations - Language Processes. MacGintie, Restaino, Rosenstein, Nov. 1965
Sociological Theory and Deafness. Sussman, Aug. 1966
Language in the General Development of the Preschool Deaf Child: A Review of the Research in the Soviet Union. Morkovin, May 1968
Audiologists in Schools for the Deaf. Siegenthaler et al., Nov. 1968
Developmental Studies of Deaf Children. Fiedler Monograph rep., Jan. 1970
Induction Loop Amplification Systems - Classroom Performance. Matkin & Olson, May 1970

SUMMARY OF ARTICLES IN *JOURNAL OF SPEECH AND HEARING RESEARCH* - 1965

Hearing

Hearing Loss and Auditory Lateralization - clinical implications (Mar)
Discrimination Text Word Difficulty - clinical implications (Mar)
Auditory Perceptual Thresholds in Brain Injured Children (Mar)
An Index of Pseudo-Discrimination Loss - clinical implications (Mar)
Some Parameters of Fixed-Frequency Bekesy Audiometry - clinical implications (Mar)
The Occlusion Effect in Bone Conduction Hearing (June)
Critical Evaluation of SAL Audiometry - clinical implications (June)
Non-organic Hearing Loss and the Consistency of Behavioral Auditory Responses - clinical implications (June)
Method for Measurement of Speech Identification (June)
Effect of the Acoustic Reflex on the Impedance at the Eardrum (Sept)
The Effect of Stapedectomy on the Loudness of One's Own Voice (Sept)
Some Effects of Bone-Conducted Masking - clinical implication (Sept)
Factors Influencing Electrophysiologic Responsivity in Normal Adults (Dec)
Analysis of Evoked and Ongoing Electrical Activity at the Scalp of Human Subjects (Dec)

Hearing Disorders

Diplacusis in Unilateral High Frequency Hearing Loss (Mar)

Language and Language Disorders

A Study of Language Disabilities in Cerebral Palsied Children - clinical implications (June)
The Influence of Selected Home Background Variables on the Development of Oral Communication Skills in Children (Sept)
Temporal Discrimination in Aphasoid and Normal Children (Sept)
Oral Language Skills in Children with Defective Articulation - clinical implications (Dec)

Speech

Determining Perceptual Spaces for the Quality of Filtered Speech (Mar)
Speech and Aural Comprehension of Foreign Students (Mar)
Experimental Modification of Dysfluency in Normal Speakers (Sept)
Verbal Punishment of Dysfluencies in Normal Speakers (Sept)
An Audio-Visual Test for Evaluating the Ability to Recognize Phonetic Errors (Sept)

The Effect of Context on Aural Perception of Words (Dec)
Oral Perception: 1. Two-Point Discrimination (Dec)

Speech Disorders

Automated Training for a "Matching-To" Sample Task in Aphasia - clinical implications (Mar)
Effect of Meprobamate on Recovery from Aphasia - clinical implications (Mar)
The Performance of Aphasics on Automated Visio-Perceptual Discrimination, Training, and Transfer Tasks - clinical implications (June)
Middle Ear Activity During Speech in Normal Speakers and Stutterers (June)
A Comparison of the Reaction Times of Stutterers and Non-Stutterers to Items on Word Association Test (June)
Relationship of Adaptation & Consistency to Improvement in Stuttering Therapy (Sept)
The Effect of Situational Difficuity on Stuttering (Sept)
Test Responses as Predictors of Free Speech Characteristics in Aphasia Patients (Dec)
Audience Size, Perceived Situational Difficulty and Stuttering Frequency - clinical implications (Dec)
An Automated Multiple Response Alternative Training Program for Use with Aphasics - clinical implications (Dec)

JSHR Research, 1965-1966

James Jerger and Charles Speaks, in *Annual Review of JSHR Research, 1966 (Journal of Speech and Hearing Disorders,* 1967, 32(2), 107-111), reviewed the research published in the Journal during 1965-66. The following is a summary of the sections of that article.

Hearing. Considerable effort was made to evaluate and refine techniques for measurement of the average evoked response. Research tools employing computer analyses of hearing and language disorders are most promising. Measurement of differences among hearing aids, however, is less scientifically definitive and studies indicate that some hearing aids do better than others and this difference is not related to routine hearing aid evaluation techniques. It is most important to consider any differences which do occur for the child with mild, flat conductive losses. Thus, traditional expectancies have been challenged.

Language Disorders. The steady increase in research in language disorders was cited. Among studies was one raising the question about possible influence of institutionalization and lack of positive reinforcement on mentally retarded children who tested as inferior on a wide variety of auditory discrimination tasks. The need to specify the extent and variety of language deficiencies was also indicated for aphasic children.

Speech Therapy. The effectiveness of group therapy was validated. However, speech therapy for mentally retarded children was not found to be more helpful than maturation. These results can be questioned when one considers the wide variety of therapies available.

Stuttering received a substantial amount of effort in 1966. The research is descriptive and reinforces consideration of stuttering as learned behavior in which operant conditioning can be a logical therapeutic device.

JSHR Research, 1966-1967

David J. Lilly, Dorothy Sherman, Arthur J. Compton, Cletus G. Fisher, and Patrick J. Carney in *Annual Review of JSHR Research, 1967 (Journal of Speech and Hearing Disorders,* 1968, 33(4), 303-317), reviewed the research published in the Journal during 1966-67. The following is a summary of their article.

Hearing. Diagnostic tests and measurement levels for pure tone and speech audiometry continue to receive primary emphasis in research with no reported research in educational areas for rehabilitation of the deaf or hard of hearing child or adult. An interesting comment with practical application was reflected by research concerning the limits of the audiometer. It may be unfair to assume that a child has no hearing simply when the limits of an audiometer are reached. At 130 dB HTL, only 30 percent of a deaf population failed to respond. Therefore, it would also be unfair to choose no amplification for these previously suspected totally deaf children.

Language Disorders. It has not proved easy to differentiate between deaf children and those with severe hearing impairment with apparent language or learning difficulties. Some educators and researchers have suggested that learning disability and language deficit may be the result of delayed diagnostic and educational procedures.

A great deal of work has been concerned with the difficulty of the deaf regarding word associations, linguist development, and language expectancies (including learning morphological rules of English and syntactical development). Many of the new techniques for teaching a second language are based on leading the child to use rules of language rather than rote memory. These techniques might easily be applied to teaching the language impaired.

Equations for predicting the degree of language development in children have been developed. These are research oriented, however, and not yet suitable for clinical or educational application. It is interesting to consider the bases of the linguistic measures, but at this point language measures (in the opinion of the authors) are valuable only for diagnostic rationalization.

Experiments designed to evaluate pretraining and facilitate learning of difficult sound discriminations have been made. Systematic gradations from easy to more difficult discrimination levels are recommended. The description of the various levels is difficult, as is the question of what real phonetic cues are relevant for discrimination. These reported studies are significant, not only for the distinctive feature theory, but also because of the advantages of describing and using well programed materials which incorporate associated conditioning techniques.

Analysis of telegraphic speech (omission of function words in the language disabled) was the subject of one study which distinguished between types of aphasia. Stress placement was also studied with normal and aphasic children; the results suggest that aphasic children's problems in encoding and decoding language may be related to an impaired auditory memory for sequences. This hypothesis was considered weak by the reviewers.

Speech. A study of the relationship between ability in speech sound discrimination and articulation disorders supported the practice of evaluating speech sound discrimination before planning a remedial program for articulation. Articulation ability was found, however, to vary on the basis of the method used to elicit speech. The selection of sounds used in corrective therapy should be influenced by this ability. Methods of evaluating articulation therapy and the advantages of attention and reinforcement in articulation also were studied and reported.

The best predictor of articulation skills of those with cleft palates is reported to be breath pressure ratio based on the effect of blowing on air pressure release. Sound pressure cannot, however, be used to predict degree of nasality.

The results of 1967 research on stuttering suggest ideas and methodologies for future research rather than focusing on information which would have value for remediation. The studies describe the ways stuttering varies with conditions. Adaptation and consistency phenomena were present in the speech of normal and stuttering children. Verbal punishment affects both groups similarly.

Changes in stuttering frequency as a function of linguistic factors have also been studied. These reports appear to be repetitive, applying new terminology to previously known factors. Consistency in use of terms, however, is invaluable.

Three studies of voice disorders were reported in 1967. They provided greater insight into problems of alaryngeal speech, hyperfunctional voice disorders, and hoarseness.

Viewpoint: A Decade of Research

M. E. Wingate in *Stuttering, 1970: Where Do We Stand (Journal of Speech and Hearing Research,* 1970, 13(1), 5-8) points out that despite vigorous activity, most research in stuttering has been undertaken to demonstrate rather than investigate; thus, progress has been limited. Methodological inadequacies in published studies cause further discouragement. Difficulties are perpetuated by disagreement between researchers on what behavior is labelled stuttering.

Researchers generally agree that stuttering is learned behavior. Within this generalization, however, there has not been careful exploration and application of the operation of learning principles. Although the situation within the subspecialty of stuttering is presently described as bleak, the future looks encouraging because of the recent revival of interest in linguistic elements.

In reporting significant research in audition during the past decade, H. N. Wright (*Hearing Disorders and Hearing Science: Ten Years of Progress* in *Journal of Speech and Hearing Research,* 1970, 13(2), 229-231) emphasized analysis of middle ear function, temporal effects on the ear, and evoked response audiometry. He felt research reported on hearing aids and speech perception and their interactions had not been as informative as possible.

The usefulness of impedance measurement devices in analysis of middle ear functioning has now been established. As a result we have a diagnostic tool for obtaining definitive information about certain types of hearing disorders. Increased understanding about bone conduction and clinical masking also contributes to diagnostic efficiency. New standards for air and bone conduction have been adopted and instrumental difficulties should be less formidable in the near future. We can, therefore, be more hopeful about positive identification of medically correctible hearing disorders.

Wright reports the past decade was an era signified by progressive awareness of the influence of temporal factors in the analyses of auditory disorders. Long and short term effects of adaptation have been studied and appear to be a promising area for future study.

The flurry of activity in the search for a new method of objective audiometry and the demise of the galvanic skin response (electrodermal response audiometric technique) were noted. At this point, we cannot know what clinical applicability may be derived from the averaged response techniques, despite the obvious attractiveness of a computer assisted diagnostic measure.

ARTICLES FROM *JSHD* FEBRUARY 1965 TO NOVEMBER 1969

Following there is a list of authors and areas of communicative disorders which were discussed in *Journal of Speech and Hearing Disorders* from February 1965 to November 1969. A brief summary of each author's article is included.

Speech and Hearing — Analysis

Summary of currently existing knowledge, services, limitations, and needs for disorders of speech and hearing as a class of disability relative to vocational rehabilitation. McDaniel, Feb. 1965

Case selection in public schools. Review of criteria for selection of children for clinical speech programs and the responsibility of the clinician for children with speech problems. Allen et al., May 1966

Review of carryover with many ideas and techniques for helping children use their improved articulation. Uses principles of learning theory and lists suggestions for clinicians. Engel et al., Aug. 1966

Discussion of issues pertinent to status of speech clinicians in public schools. Van Hattum, Aug. 1966

Philosophical discussion of success and failure in speech therapy. Van Riper, Aug. 1966

Presents point of view regarding individual and group counseling of parents of children with communication disorders. Webster, Nov. 1966

Points of view expressed by four university training program directors, reflecting criteria for case selection in the schools. Webster et al., Nov. 1966

Disclosure of plans to conduct a national speech and hearing survey of sample schools in the United States (Colorado based). Hull et al., Nov. 1966

Description of induction loop system to allow better supervision of student clinicians. Brooks et al., Nov. 1966

Presentation of different points of view regarding case selection. Flower et al., Feb. 1967

Critique of questionable assumptions underlying articulation research. Author challenges accepted points of view which have influenced trends in articulatory therapy as well as research. Article is of questionable validity as the assumptions have frequently been challenged; however, the points are well made. Locke, May 1968

Discussion of problems of case selection in the schools suggesting clinicians consider experimental approaches. Henrikson, Aug. 1968

Development of a standard case record form — model presented and defended. Rees et al., Feb. 1969

Description of the Oakland County, Michigan schools' Speech and Hearing Clinic. Freeman, Aug. 1969

Causality in speech pathology is considered, and unfortunate legacies regarding cause and effect relationships are explored, leading to a conclusion that erroneous assumptions regarding causality may be perserving some problems. Perkins, Aug. 1969

Aphasia

Critical re-evaluation of the author's short examination for aphasia to consider possible sources of unreliability and suggest alternate procedures. Use of scaled tests to help evaluate language behavior is suggested. Schuell, May 1966

Description of language master cards to be made up by clinician for use in helping aphasic patients to name specific pictures in speech and writing. Keenan, Aug. 1966

Description of a teaching machine — an electric board — for aphasics. Keith et al., May 1967

Case reports of five aphasic and apractic patients discussing a method of self generated cues as an initial therapy procedure. Berman et al., Nov. 1967

Article on developmental aphasia listed under language/language disorders (children). Eisenson, Feb. 1968

Nature of receptive and expressive impairments of aphasia viewed as a breakdown in language retention — provocative to explain why there is better receptive capacity on tests. Keenan, Feb. 1968

Discussion of six aphasics' reports on their own aphasia as a result of structured, nondirected interviews and encouragement to describe what was happening during attempts to communicate — video tapes. Rolnick, Feb. 1969

Case study of 51 year old man post CVA with a type of visual-spatial disorder which may be encountered by aphasics. Visual-spatial neglect, with omission of details from symmetrical objects when drawn from memory, is described. La Pointe et al., Feb. 1969

Information on how family is affected by aphasics. Twenty-five interviews representing 20 persons with aphasia. Clinical implications included counseling for families. Malone, May 1969

Communication Disorders - General

Application of an approach — an interpersonal orientation to communication disorders, highlighting the social character of communication and reciprocal influence of children and adults in situations. Siegel, May 1967

Description of method for removing segments from sound spectrograph to study specific speech samples. Muma & Brown, May 1967

Description of therapy program for mentally retarded delinquents. Peins, May 1967

Report of reinstatement of speech in a mentally retarded, disturbed, institutionalized woman who had not spoken since hospital admission use of operant conditioning procedures. Hamilton et al., Nov. 1967

Language Disorders - Children

Description of language function. Hardy, Feb. 1965

Suggestion that electroencephalography provides objective evidence of CNS dysfunction underlying certain developmental disorders of communication. Eisenberg, May 1966

Study to explore thesis that language delayed child is not just slower in syntactic development but is proceeding in a bizarre manner. Organizes theoretical construct of the development of early syntactic structures in children (called developmental sentence types) to determine if the construct is a feasible tool for uncovering areas of abnormal syntactic development in children. The Developmental Sentence Types Approach was helpful in distinguishing areas for help. Lee, Nov. 1966

Discussion of factors to evaluate in making differential diagnosis between aphasoid and schizophrenic children. de Hirsch, Feb. 1967

Review of literature on ability to distinguish between closely related speech sounds and defective articulation. Findings are discussed and those supported are: developmental character of auditory discrimination and better performance by children of favored socio-economic groups. Also, positive relationship exists between auditory discrimination and the more severe articulatory difficulties at age levels below 9. Weiner, Feb. 1967

Report of systematic attempt to develop language in nonverbal autistic boy. Based on operant conditioning. Schell et al., Feb. 1967

Discussion of language and speech deficits which interfere with school learning, the influence of class-linked variables in early language development, and clinician-program influences on remediation. Raph, Aug. 1967

Review of the literature of speech and language problems in mongolism. An attempt was made to link possible predisposing mongoloid stigmata with specific deviations. Zisk et al., Aug. 1967

Description of program for psychotic children to develop speech and language. Ruben et al., Aug. 1967

Operant conditioning applied to verbal sequence discrimination training for language impaired children. McReynolds, Aug. 1967

Discussion of the theoretical implications of speech, thought, and communication disorders in psychotic children. Shervanian, Nov. 1967

Description of a method for studying and evaluating the areas of language and communication in autistic children. Philosophy, as well as scales and inventories used, is presented. Ruttenberg, Nov. 1967

Second article in series describing communication therapy for autistic children. Wolf et al., Nov. 1967

Discussion of developmental aphasia — description, definition, and therapeutic implications. Eisenson, Feb. 1968

Description of operant conditioning techniques used with an autistic child. Stark et al., Feb. 1968

Description of the use of radio telemetry for monitoring verbal behavior of a preschool child. Recordings were made in child's home, allowing natural samples. Hoshiko, Feb. 1968

Description of study of auditory comprehension of children. Discussion of development of auditory comprehension of language structure (linguistic analysis). Carrow, May 1968

Report of materials and procedures used in speech and language screening of Head Start program. Monsees, May 1968

Description of procedures for group parent counseling in speech pathology and audiology. Specifically, role playing. Webster, May 1968

Description and discussion of childhood auditory agnosia. Case study with clinical findings of 22 year old girl. Stein et al., Nov. 1968

Review of significance and implications of the prelinguistic stage of early speech development. Valuable review which reflects expansive degree of concern among speech and hearing personnel. Siegel, Feb. 1969

Discussion of mean length of response of children's language as a measure. Response shown to vary with manipulations and situational factors. Shriner, Feb. 1969

Report of delayed language development of children who had been institutionalized erroneously. Adams, May 1969

Presentation of a theoretical linguistic model of children's systematic consonant usage — a phonological model of articulation competence. Author considers model an initial step to further specification. Crocker, Aug. 1969

Case report of language development program for a blind communicatively handicapped child. Wessell, Aug. 1969

Surface structure, deep structure, and transformation; a model for syntactic development — an attempt to integrate language structures to psychological areas. Hass et al., Nov. 1969

Presentation of approach useful for developing speech and language in two 7 year old nonverbal boys. Blake, Nov. 1969

Deaf Children

Study of modes of coding used by older deaf children in short term memory. Pilot attempt to examine this kind of imagery. Consistency of errors implies an encoding procedure which is at present obscure. Conrad & Rush, Nov. 1965

Report of training short term memory of 38 deaf children through visually presented programed materials. Effective demonstration of using programed techniques in teaching written language skills to deaf. Rush, Aug. 1966

Use of a master hearing aid selectometer (Beltone) as an auditory training unit with nine hearing impaired children ages 2-5. Miller et al., Aug. 1966

Relationship between tuberculous meningitis and deafness — review of literature. Vernon, May 1967

Description of a modification of a language master to allow recording of speech — voice and articulatory

pattern of children and audiogram for deaf and hard of hearing children. Adaptable to all children. Bellefleur, Nov. 1968

Speech and Voice Disorders

Comparison of fundamental speaking frequency and size of mongoloid girls with normal girls of the same age. Conclude—mongoloids possess vocal frequencies similar to girls 2-3 years younger. Hollin et al., Nov. 1965

Description of some acoustic and perceptual factors associated with acute laryngitic hoarseness. Recordings were judged for quality. Shipp et al., Nov. 1965

Report of treatment of two cases of functional aphonia (one adult, one child). Each responded to symptomatic voice therapy. Procedure described. Boone, Feb. 1966

Psychiatric investigation of patients with voice disorders. Generalizations are made on basis of clinical psychiatric and MMPI studies of 27 patients with functional dysphonia. Conclude — hysteria plays a major role and no serious psychopathology was present in the group. Aronson et al., May 1966

Report of incidence of 7.1 percent of 1st, 3rd, and 6th grade children who were tested for chronic hoarseness. Lack of clear definition for term hoarseness and need for refined judging procedures were cited. Baynes, May 1966

Defective articulation characterized by open syllable patterns (omission of final consonants) implies the need for carefully timed treatment to take advantage of child's spontaneous speech development. Renfrew, Nov. 1966

Case study of hypernasality in 14 year old girl with myasthenia gravis. Alerts reader to need for team cooperative studies. Wolski, Feb. 1967

Voice change in adult women caused by virilizing agents which produce secondary male sex characteristics. Damste, May 1967

Discussion of importance of word choice used with voice patients — implications of semantic problem of terminology. Brodnitz, Nov. 1967

Article based on questionnaire sent to various laryngectomee experts to consider the use of the artificial larynx for the laryngectomees. Lauder, May 1968

Considerations of the emotionally disturbed child in the speech clinic, questioning role of speech pathologist. Weiner, May 1968

I. Spastic Dysphonia - spastic form of nervous hoarseness — description and discussion of voice, neurologic, and psychiatric aspects in a group of 31 patients. Aronson et al., Aug. 1968

II. Spastic Dysphonia — comparison with voice tremor and other neurologic and psychogenic dysphonias. Conclude—spastic dysphonia is a neurologic disorder. Aronson et al., Aug. 1968

Case report of vocal ulcers in a 71 year old male. Burkowsky, Aug. 1968

Use of a storage oscilloscope in speech therapy to teach 4 year olds with inadequate soft palate. Schwartz, May 1969

Discussion of techniques of simultaneous recording of intra-oral air pressures, rate of nasal airflow, and the speech signal to evaluate velopharyngeal functioning in dysarthria. Netsell, May 1969

Presentation of a test for detecting first grade children who would overcome articulation errors without speech therapy — Predictive Screening Test of Articulation (PSTA). Van Riper et al., Aug. 1969

Evaluation of speech therapy through precision recording — procedure and criteria for evaluating data are presented. Mawrer, Aug. 1969

A case presentation of spastic dysphonia. Fox, Aug. 1969

Discussion of studies concerning intelligibility of esophageal speech from viewpoint of laryngectomee specialist. Lauder, Nov. 1969

Speech pathology and symptom therapy in the interdisciplinary treatment of psychogenic aphonia — results of voice therapy with 40 cases. Aronson, Nov. 1969

Hearing Loss: General - Conductive - Testing (G.A.)

Incidence of hearing loss related to climate. Higher incidence of sensori-neural type in dry eastern counties of Oregon (possibly related to encephalitis antibodies in population there) and greater percentage of conductive type in wet coastal counties. Anderson, Feb. 1965

Incidence of hearing loss among school children in India is 16.3-18.6 percent. Of these, 14.6-17.5 percent have conductive losses which can be treated and in many cases corrected. Kapur, Aug. 1965

Hearing loss in polycythemia vera, a blood disease affecting circulating red blood cells. Case study. Nilo et al., Aug. 1965

Results of using SAL test in conductive hearing loss. Conclude—SAL test can be used effectively. Lynn et al., Nov. 1965

Recommendations for hearing conservation programs in schools. Downs et al., Nov. 1965

Presentation of case where electroencephalic audiometry (computer technique) was helpful. Goldstein et al., Feb. 1966

Discussion of pure-tone audiometry in terms of reinforcement and other operant principles. Application of different vocabulary (new words) for standardly used procedures (old methods). Lloyd, May 1966

Further recommendations for hearing conservation programs in schools — frequencies to use and intensity levels most desirable are discussed. Lloyd, May 1966

Case report of ear canal collapse during child's testing. Stark, Nov. 1966

Clinical report on results of using averaged evoked responses to obtain hearing thresholds in children. Test is particularly helpful in young children with auditory perceptual problems not due to peripheral deficits. Price et al., Aug. 1966

Describes how Groson Stadler Speech Audiometer's white noise generation

can be adapted for SAL test. Cody, Aug. 1966

Admonishes not to use labels of central auditory pathway deficits so loosely while ignoring the presence of real peripheral hearing loss. Plea for use of careful auditory diagnostic techniques. Rosenberg, Aug. 1966

Intertest variability as the explanation for air-bone gap changes. Studebaker, Feb. 1967

Consideration of needs for practical audiology — a program which includes all aspects of patients' vocational, social, and family contacts. Four illustrative cases. Harrison, May 1967

Description of use of Bekesy audiometer in modified Bing test to evaluate middle ear function via the occlusion effect. Feldman et al, Aug. 1967

Description of two sample tests to detect collapse of external ear canal during audiometry. Lynn, Aug. 1967

Description of communication problems experienced by persons with a unilateral hearing loss. Giolas, Nov. 1967

Presentation of audiological data on 1,000 children with hearing loss. Records collected in Colorado from 1960-1965. Weber et al., Nov. 1967

Explanation of relationship of test results on inconsistency of hearing to temporal summation based on how rapidly short duration tones are turned off and on. Wright, Nov. 1967

Explanation of clinical masking of nontest ear. Description of three methods including the author's design to solve troublesome masking problems. Studebaker, Nov. 1967

Description of diagnostic dilemmas of rising audiometric configurations. Case study of child whose aberrant auditory language and social behavior were attributed to this type of audiogram. Ross et al., Nov. 1967

Description of a single, evoked response audiometer constructed for clinical use. Davis et al., Feb. 1968

Description of operant conditioning techniques (TROCA) for difficult to test children. Techniques used with 50 profoundly retarded. Suggested for infants or others. Lloyd et al., Aug. 1968

Description of a new approach to speech audiometry — synthetic sentence identification (SSI) was developed in an attempt to define more effectively a listener's speech understanding ability. Jerger et al., Nov. 1968

Description of diagnostic therapy program in university clinic for hearing handicapped children as a followup procedure to traditional diagnosis for training clinical personnel. Giolas, Nov. 1968

Comparison of studies on bone conduction thresholds and HAIC standards for bone conduction audiometry. Olsen, Feb. 1969

Considerations of evoked response audiometry with cautions and suggestions for interpretation. Price, May 1969

Description of an inexpensive portable diagnostic speech audiometer. Hooker, Aug. 1969

Review of literature on occlusion effect and forehead bone conduction, and rationale for use of bone conduction oscillator on forehead with ears covered with audiometer receivers. Martin, Aug. 1969

Description of procedure using operant audiometry with low functioning children. Bricker et al., Nov. 1969

Validation of observer judgements in behavioral observation audiometry. Procedure to provide a means of detecting the number of times an observer scores false positive. Weber, Nov. 1969

Hearing Loss: Differential Diagnosis — Cochlear — Retrocochlear

Question of whether simple audiometric tone decay test can predict Bekesy patterns and the role of recruitment in the predictions. Recommended use of pure tone audiometer screening test for tone decay. Owens, Feb. 1965

Study of normal hearer's characteristic response to SISI. Recommend the use of a 0.75 increment to more definitely isolate cochlear involvement if a SISI score of 60 percent or higher is to be accepted as indicator of cochlear pathology. Hanley et al., Feb. 1965

Summary of findings of Types II and V Bekesy tracings in normal ears. Stresses careful clinical interpretations of Bekesy audiograms. Price et al., May 1965

Type V Bekesy audiograms in which the continuous tracing is above the interrupted tracing. Have limited clinical utility as an indicator of non-organic hearing loss. The phenomenon has been inadequately explained. This study evaluated the point of view of the author in a group of conductivity impaired patients. Hopkinson, Aug. 1965

The SISI test is highly useful in determining site of lesion. Test scores for patients with cochlear lesions were typically 60 percent. Those with VIII nerve tumor were typically 0 percent. Also, patients with VIII nerve involvement other than tumor meet 60 percent criteria for cochlear involvement (3 patients). Owens, Aug. 1965

Considers whether SISI and ABLB are duplicative; i.e. do both reflect loudness recruitment. Concludes that they do. Owens, Aug. 1965

Analysis of 110 cases surgically confirmed retrocochlear lesions. Slightly more than half produce expected classical auditory responses. Remaining cases present inconsistencies. Johnson, Nov. 1965

Case report of sudden unilateral hearing loss with spontaneous, complete recovery. Altshuler, May 1966

Case study of recovery of hearing after cerebellar tumor removal (pressure had been produced on VIII nerve). Jerger et al., Aug. 1966

Emphasizes need for complete battery of audiologic, radiologic, vestibular, and laboratory studies in differential diagnosis of S-N hearing loss. Their analysis of efficacy of audiologic tests revealed failure to gain consistent patterns. Note — when cochlear and retrocochlear pathologies co-exist, audiometric findings will be determined by former. Shapiro et al, Feb. 1967

Report of case of left hemispherectomy. There was little or no change in a 17 year old girl in motor, speech, or

hearing performance pre- and post-operatively. Discrimination for low pass filtered speech was reduced on ear contralateral to the cerebral damage. Loudness, balance, and high intensity SISI were different with each side. Hodgson, Feb. 1967

Review of apparatus necessary for administering the vestibular test using the electronystagmograph (ENG) and discussion of test interpretation. Smith, May 1967

Presents viewpoint of including the vestibular as well as the auditory portion of the labyrinthine — VIII nerve system. Role of electronystagmography in clinical audiology presented. Rosenberg et al., May 1967

Report of SSW — Staggered Spondaic Word Test — a measure of central auditory dysfunction. Katz, May 1968

Report of clinical findings of meningeomas of the cerebellopontine angle. Audiologic and vestibular studies are discussed. Katinsky, Nov. 1968

Hearing Loss: Rehabilitation — Amplification — Non-Organic Loss

Contralateral routing of signals study demonstrating unilateral hearing loss persons can use hearing aids. Harford et al, May 1965

Description of a lipreading test based on monosyllabic homophenous words which are nearly impossible to perceive by lipreading alone. Therefore, it is a test for non-organic deafness. Falconer, Aug. 1966

Report of evaluation of children and their hearing aids which reveals that parents are poorly informed. Only 16 percent of the children were wearing aids which could be considered adequate. We are deficient in counseling and guidance with the parents and in thorough training with the child and his new hearing aid. Gaeth et al., Aug. 1966

Plea for use of term pseudohypacusis to describe feigned hearing loss in adults and school age children. Author believes no patients seen audiologically met criteria to be considered psychogenic. Goldstein, Nov. 1966

Discussion of middle ear reflex measurements in pseudohypacusis. Valuable technique for differential diagnosis. Lamb et al., Feb. 1967

Description and recommendation for use of a body type hearing aid for unilateral hearing losses. Positive results on 12 of 13 children for whom it was tried. Miller, Aug. 1967

Reports influence of battery life upon nonlinear distortion in seven new hearing aids. Lotterman et al., Aug. 1967

Discussion of the use of the Utley lip reading test in hearing aid evaluations to give useful supplemental information. Dodds et al., May 1968

Case report with admonishment that distortion in the perception of speech may be undetected in a hearing aid consultation. Emphasizes need to consult patients regarding their subjective impressions of what they hear. Chaiklin et al., Aug. 1968

Report of the hearing aid program of the Colorado hearing conservation program. Zink, Nov. 1968

Report of clinical studies of 32 hard of hearing adults combining vision and audition for speech reception. Conclude—acoustic tests alone are not adequate for consideration of patients' communicative ability. Siegenthaler et al., Feb. 1969

Description of program used very successfully in hearing aid orientation for mentally retarded residents in Illinois. Moore et al., May 1969

Speech Disorders - Stuttering

Study of how well frequency of stuttering could be predicted by transition probability of words in text and by frequency of occurrence of these words in the language. It was found that the locus of stuttering could be predicted by forward word, by word guessing and by response as measured by frequency of its occurrence in the language. Schlesinger et al., Feb. 1965

Consideration of problem of assessing listener's reaction toward dysfluency. In laboratory situation, reaction of listeners toward speech dysfluency are contingent on their set and assumptions. The dimensions of auditor reactions are influential. Sander, May 1965

Analysis of the utilization of semantic satiation in stuttering. Use of method to induce lapse of meaning, originally described in 1907, is intriguing as applied to stuttering. Theoretical paper with suggestions for empirical studies. Jacobovits, May 1966

Review of efforts to present the adaptation effect as evidence that stuttering is learned behavior. Suggests several fundamental features of stuttering adaptation are not analogous to psychological principles of extinction and spontaneous recovery. Adaptation data do not support belief that stuttering is learned. Wingate, May 1966

Comparative analysis of linguistic output of stutterers and nonstutterers. The only significant difference was in dysfluency. Knabe et al, May 1966

Examination of relationship between outcome of stuttering therapy and certain scales related to predictability on MMPI. Lanyon, May 1966

Analysis of learning theory principles as they apply to stuttering. Author concludes stuttering cannot be viewed as learned. Wingate, Aug. 1966

Report of personal use of portable masking noise generator (stutter aid). Trotter et al., Aug. 1967

A child psychiatrist's view of therapy for stuttering. A challenge to the inadequacies of speech pathologists. Weinstock, Feb. 1968

Description of stuttering workshops — group therapy in a rural high school setting. Followup and effect on individuals are discussed. Laeder et al, Feb. 1968

Description of a process labelled Inter-Personal Communications Therapy for adult stutterers. Considers client-clinician relationship primary factor. Cooper, Aug. 1968

Theoretical and clinical implications of the finding that delayed auditory feedback reduces stuttering. Suggest use of DAF as an adjunct to therapy. Soderberg, Aug. 1968

Evaluation of research findings in studies of delayed auditory feedback and stuttering. Eleven studies are reviewed and conclusions compiled. Soderberg, Feb. 1969

Description of exceptional therapeutic programs based on principles of operant conditioning. Evaluation of program included. Shames et al., Feb. 1969

A feedback model of the stuttering problem — an engineer's view suggesting a method for study along lines of decreased sensory feedback. Sklar, Aug. 1969

Report of conversational rate control therapy for stuttering which is based on operant conditioning utilizing delayed auditory feedback, reciprocal inhibition, operant conditioning, and time out. Curlee et al., Aug. 1969

Behavior change in stuttering through systematic desensitization of anxiety. Reports case. Lanyon, Aug. 1969

Description of new use for Sheehan's sentence completion test originally designed to provide information about role of guilt in stuttering — extended as a tool for understanding self perceptions and as an indicator of change of self perceptions during speech therapy. Griffith, Nov. 1969

Clinical impressions of portable masking unit effects on stuttering. Evaluated three adult stutterers' response after 3-5 days use. Perkins, Nov. 1969

Organic Speech Disorders

Physiological support for speech of Parkinson's disease, normal speakers compared, and implications for therapy considered. Canter, Feb. 1965

Consideration of the question: Who teaches postlaryngectomy voice more efficiently, laryngectomized voice instructor or speech pathologist? Lauder, May 1965

Study of tongue carriage, tongue mobility, and compensatory action in cleft palate subjects with cineradiography. Brooks et al, May 1965

A study of esophageal speech skill which indicated that better speakers can always phonate a command, sustain vowels, average over 10 syllables in a single inflation, and have .4-.5 second latency periods between inflation and phonation. Berlin, May 1965

Air volume, rate of air flow, and phase relationships of effective esophageal speakers were studied. Clinical interpretations of data discussed. Snidecor and Isshiki, Aug. 1965

Investigation comparing articulatory diadochokinetic performance of Parkinson's disease patients with that of normal patients. Canter, Aug. 1965

Emphasizes cleft palate children may have speech affected by disturbances related to developmental inadequacies associated with cleft. Other structures in palatal area may be affected. Fletcher, Feb. 1966

Report of cinefluorographic study of compensatory tongue — soft palate contact in cleft palate, palatal insufficiency patients, and a control group. Brooks et al., Feb. 1966

Study of relationship between oral-breath pressure ratios and articulatory proficiencies of children with cleft palate. Generally children with adequate intra-oral breath pressure ratio show better articulation. Pitzner et al., Feb. 1966

Evaluation of group cerebral palsied (kernicteric athetoid) children. Variety tests related to auditory function were administered. Communication disorders of group discussed. Flower et al., Feb. 1966

Evaluation of group of cerebral palsied (kernicteric athetoids) in regard to the problems in language comprehension and use. Tests measuring various aspects of verbal functions were given. Flower et al., Feb. 1966

Description of technique for use with severely communicatively handicapped patients (any otrophic lateral sclerosis) who cannot make simplest needs known. Adams, Aug. 1966

Report of results of administration of ITPA to 136 cleft palate children demonstrating their weaknesses in vocal and gestural expression and in visual memory. Smith et al., Feb. 1968

Description of speech disability associated with myotonic dystrophy, an infrequent progressive form of muscular dystrophy. Hypernasal speech — initial identification of 27 year old's condition. Weinberg, Feb. 1968

Management of velopharyngeal dysfunction in cerebral palsy, including consideration of surgery and prostheses. Hardy et al., May, 1969

Anatomy — Physiology Speech Mechanisms — General Speech Defects — Anomalies

Comparison of breath pressure ratio and U-tube measure of nasal escape with cinefluorographic index of palatopharyngeal closure. Conclude—articulation testing is better test of palatopharyngeal adequacy for speech than are simple measures of nasal air escape or oral breath pressure. Shelton et al., Feb. 1965

Observations on tongue thrust and deviant swallowing related to basic sciences. Hoffman et al., May 1965

Description of visceral swallowing; incidence of this among lispers — approximately 50 percent. Ronson, Nov. 1965

Lisping and persistent thumb sucking among children with open bite malocclusions possibly related. No significant relationship between lisping and thumb sucking. Mims et al., May 1966

Description of technique of injecting teflon-glycerine into the posterior pharyngeal wall to reduce naso-pharyngeal leak and alleviate velopharyngeal insufficiency. Ward et al., Aug. 1966

Review of status of oral manometer as a diagnostic tool to quantify amount of oral air pressure which will then

lead to evaluation of velopharyngeal competence. Morris, Nov. 1966

Discussion of the findings of behavioral analysis relevant for speech clinicians with suggestions of ways operant principles can be facilitated. Holland, Feb. 1967

Presentation of method to correct a defective "r." Slipakoff, Feb. 1967

Suggestions for more effective therapy for tongue thrust. Hanson, Feb. 1967

Use of television — one minute video tapes before and after therapy with means of periodic evaluation during therapy. Burkland, Feb. 1967

Description of the way an experimental analyst approaches problems in behavioral modification and control. General description for speech pathology of operant conditioning procedures. Brookshire, Aug. 1967

Description of author's film strip articulation test as diagnostic-clinical tool. Goldman et al., Aug. 1967

Assessment of lingual tactile sensation and perception. Series of tactile-sensory skills with a priori relevance to speaking, chewing, and swallowing is defined and guidelines for assessment included. McCall, May 1969

Description of case with severe hypoplasia of the tongue. Weinberg, May 1969

Description of voice and articulatory defects from paralysis due to a glomus jugulare tumor. Therapeutic management. Gardner, May 1969

TRENDS

A search of the primary speech and hearing periodicals has been made with a distinct effort to review objectively all available information in this area of professional concern. In an attempt to identify significant issues, all three journals published by the American Speech and Hearing Association were included and a variety of approaches were used to summarize significant developments and trends. The following observations have been made:

1. There are subtrends which may reflect professional interest broadly or editorial committees specifically; in other words, there are periods of a high frequency of occurrence of certain subjects. Tongue thrust, linguistics, and use of operant conditioning are examples. Many articles occur on a single theme, possibly even in the same journal.
2. It becomes more and more difficult to separate articles into discrete categories. This may be due to conscious attention to the fact that we cannot fractionate children. We are dealing with and must consider the whole child. From specific speech and/or hearing, however, there is a noticeable trend towards consideration of the child with language impairments and/or learning disorders. There is a conscious and detectable attempt to cope with the communicative disorders of the child as a system and not solely to concentrate on specific deficiencies. Many articles, however, still deal with details and specifics.
3. Attention to hearing and language disorders is increasing while attention to speech disorders, per se, is decreasing. Either speech pathologists are not writing (as reflected by Jerger in 1966) or there are other reasons for this trend.
4. The percentage of papers dealing with language and language disorders is increasing. There is a distinct impression that the professional is becoming concerned with the association of language with learning. If one considers language as a vehicle for thought, recognition of the importance of adequate development during early childhood is a provocative responsibility. This alone would be enough to explain the concern of public school speech and hearing personnel for the child with a learning disability. Obviously, there are other reasons, such as the high incidence of speech and language deficits in the population of children with learning disabilities.
5. There is more awareness of linguistic models for speech and language serving as bases for critical evaluation of re-education.
6. There is a decided increase in the application of operant conditioning principles to all aspects of disorders of communication -- speech, hearing, learning, and language.
7. Despite the critical viewpoint regarding the prevalence of descriptive research and the dearth of studies dedicated to explanation and remediation, this may reflect the perpetual dilemma of coordinating professional life style with the publish or perish predicament. There is little doubt that a great deal of excellent therapeutic and remedial teaching does occur. Many children are being helped by professionals using logical rationales for their programs of behavioral modification. This is not reflected by published research. The majority of reported studies are concerned with minutia, reiteration, and redundancy and, under the guise of maintaining rigid requirements for scientific research, become more and more involved with irrelevancy.
8. One hopeful trend is that writers are becoming aware of the necessity to evaluate the significance of their research and to apply the findings.