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Facet theory and design for the dimensionalization of teaching behaviors.

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FACET THEORY AND DESIGN FOR THE DIMENSIONALIZATION OF TEACHING BEHAVIORS

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Dedicated,

with deepest affection, to my wife Gayle,
without whom the journey itself matters little;

with great love, to my daughter Jennifer Roshan,
who awakens light and joy in me in very profound ways;

and to the late Paul Mus, as a small token of my esteem
and as a reminder of the manuscript that died with him.

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CHAPTER I

INTRODUCTION

Educational researchers have for years recognized the need to analyze teaching behaviors and have worked toward the development of teacher observation instruments to isolate and identify those behaviors. They have produced a wide spectrum of theories on classroom observation and have generated a vast number of observable and nonobservable behaviors. But little effort has been exerted either to correlate the studies or to collate the behaviors. Recently, however, a few educational researchers have been trying to direct classroom research away from studies which overlap one another into a wholly new area, the creation of a system that will encompass the objectives of existing observation instruments and of a vocabulary to coordinate the description of classroom behavior. They have suggested that the facet theory and design of Louis Guttman (1954) and Uriel G. Foa (1965) should be applied to the study of classroom behavior to create a model for the development of a category system that will reveal the full dimensions of teaching behavior (Biddle 1967, Snow 1968, Gage 1969).

Facet theory and design are pertinent to the analysis of teaching behavior because of the diffuse character of present classroom behavior studies. Bruce J. Biddle

(1967) has shown how recent studies have dealt with such approaches as teacher performance, audience performance, target performance, teacher-pupil interaction, and external and internal structures. Terminology and concepts have overlapped the resultant observation systems, largely because of a lack of correlation among studies. Biddle proposes that the application of facet design might ensure the comprehensiveness of any list of teaching behaviors and avoid conceptual overlap among observation systems. Richard E. Snow (1968) has written that facet design would be an excellent means by which to define the dimensions of teaching behavior. And most recently Nathan L. Gage has offered that facet design "would help systematize the dimensionalization of classroom behavior"; and, he implies, if facet design were applied to a comprehensive, computer-based item pool of teaching behaviors, "the problems of dimensionalizing and describing teaching methods will become substantially more manageable" (1969: 1452).

Still, only cursory explorations of the use of facet design to dimensionalize teaching behavior have been conducted. M. K. Openshaw and F. R. Cyphert (1966), for example, have developed a taxonomy for the classification of teacher classroom behavior along the lines suggested by facet theory--without, however, in any way adopting a facet design. William J. Gephart (1969) has

attempted to show how facet theory may be applied to generate research methodologies; his study succeeds in explaining clearly the theory itself rather than in creating any useful model. Most recently Dov Elizur (1970) has used facet theory and design to study the behavior changes of public employees in Holland confronted in their work by the introduction of computers. Elizur's study is a veritable textbook on the various steps involved in facet theory and analysis. Thus, although little major work has yet emerged, some classroom researchers are aware of and intrigued by the possibilities of applying facet theory and design to taxonomic studies of teaching behaviors.

This study is an effort to discover the application of facet theory and design to the problem of the classification of teaching behaviors. It is an outgrowth of the work begun at the Stanford Center for Research and Development in Teaching in 1967 which resulted in the prototype Taxonomy of Teaching Behaviors (Baral, Snow, Allen 1968) and later expanded into the 1970-1972 Task Analysis System for Educational Personnel Development, a project of the University of Massachusetts School of Education funded by a joint grant from Career Opportunities Program and School Personnel Utilization Leadership Training Institutes (COP-LTI, SPU-LTI). Since little work has been done on even the idea of applying facet

theory and design to a universe of teaching behaviors, this study faces all the potential hazards of any pioneering venture in exploring a new area in educational research. A full-fledged and functional facet system for the dimensionalization of teaching behaviors lies in the future. Therefore the central purpose of this dissertation is to demonstrate how facet theory and design can make a universe of teaching behaviors comprehensive and give it a workable organizational structure.

The following chapters deal with four areas of research. First, because the empirical data base evolved within the context of the Task Analysis System for Educational Personnel Development, with the writer serving as principal coordinator (1970-1972), Chapter II reviews the background and developmental history of that project. Then, since work on facet theory and design must take into account previous studies on the categorization of classroom behavior, Chapter III appraises the research on classroom observation and the problems of categorizing teaching behaviors. Chapter IV discusses the small body of work on facet theory and design in order to explain these concepts. Chapter V attempts to apply a facet design to the existing empirical data in an effort to create a model which will be a useful contribution to research on teaching behaviors. The final chapter summarizes the findings and suggests possibilities for further research.

C H A P T E R II

DEVELOPING A UNIVERSE OF TEACHING BEHAVIORS

The Stanford Taxonomy Study

The idea for a comprehensive, computer-based item pool of teaching behaviors is relatively recent. In 1966, out of a concern over the inadequacy of the rating instruments then being used in the Stanford Secondary Teacher Education Program, members of the staff of the Stanford Center for Research and Development in Teaching began a study of the Stanford Teacher Competence Appraisal Guide, the major instrument used for the assessment of intern teachers in the Stanford program. This project, identified as the "Appraisal Guide Revision," concluded that there was a definite need for more specific behavioral analysis of teaching. It suggested a new focus on the collection of items of summary appraisal defining major areas of teacher behavior, with specific appraisal items grouped under these summary items. The project members decided arbitrarily to try to build an item pool of behaviors representing three major domains of classroom teaching behavior--"attention," "participation," and "explanation." As the project moved away from its limited objective of improving a specific teacher evaluation instrument, it became "A Taxonomy of Teaching Behaviors," a study under Stanford's Heuristic Teaching

program, and began to build the beginning stages of a comprehensive system for the description of classroom teaching behavior (Baral, Snow, Allen 1968).

School administrators, teacher educators, and educational researchers have long recognized the need to observe, describe, and assess the teacher's behavior in the classroom. Many attempts to address this need have been made. However, Bruce J. Biddle comments that, "although a wide variety of classroom phenomena has in fact been investigated, it is difficult for both the reviewer and the investigator to understand the relationships between their findings and those of others" (1967:354). A. Simon and E. G. Boyer, in their 1967 anthology of classroom observation instruments Mirrors for Behavior, bring to our attention the many observational techniques and instruments produced prior to that time. Consideration of these instruments leads one to conclude that they mirror their authors' predilections, that any one instrument serves only a few of many possible functions in classroom observation, and that there is obvious conceptual overlap between instruments.

Biddle surveyed a wide selection of current observation instruments dealing with teacher performance and discovered that, "although the concepts utilized appear to cover an enormous conceptual territory, in actuality only three basic teacher characteristics appear to be

dealt with"--teacher action, manners, and characteristic roles (1967:346-47). Comparing lists of teacher action suggested by Ned Flanders (1960), Marie Hughes (1959), Philip Jackson (1965), and Hugh Perkins (1964), Biddle also discovered a "considerable conceptual overlap between items listed as actions, manners, and characteristic roles" (1967:347). Research based upon such instruments is therefore restricted by both the predilections reflected in them and the conceptual overlap between them. Stanford's taxonomy study team concluded that, to incorporate the objectives of all existing instruments and to create a standard vocabulary for the description of classroom behavior, a more comprehensive and flexible observation-assessment system was needed. The team suggested that such a flexible observation system would contribute to integrating the diffuse interests of educational researchers.

Existing observation instruments are largely characterized as either category or sign systems. Donald M. Medley and Harold E. Mitzel have defined category systems as those which "construct a finite set of categories into one and only one of which every unit observed can be classed." Sign systems are those designed "to list beforehand a number of specific acts or incidents of behavior which may or may not occur during a period of observation." The former is intended to be exhaustive

of the type of behaviors to be recorded by the observer or researcher; the latter is selective in its inclusion of only those specific behaviors predetermined as signs or incidents to be observed (Medley and Mitzel 1963:298-99). The Stanford taxonomy study attempted to produce a descriptive behavioral system which would include both the category and sign approaches. In 1970 the University of Massachusetts School of Education task analysis project adopted this objective, envisioning the item pool as "a universe of classroom behavior descriptors. . . from which signs or subsystems of categories can be extracted" (Baral, Snow, Allen 1968:2-3). In this sense the task analysis project, in setting as its first objective the building of a comprehensive item pool, was the direct heir of the earlier Stanford taxonomy study.

The initial taxonomy produced by the Stanford researchers was simply a prototype of a universe of classroom behaviors. The original pool consisted of 1500 item statements, based mainly on summary items from the Stanford Appraisal Guide and specific items from the Performance Criteria of the Secondary Teacher Education Program. Additional items were generated from critiques of these two instruments made by staff members of the Stanford Center for Research and Development in Teaching, from a cursory review of existing observation instruments

such as those collected in Simon and Boyer's Mirrors for Behavior, and from various articles discussing classroom observation. The pool was cross-indexed according to key words in the item statements. One item could appear several times, depending on the number of key words, and the pool of 1500 items could then generate a larger pool of approximately 5000 items. For example, the item "teacher controls student participation through recitation" would appear three times, once under each of the underlined key or control words. The taxonomy also coded each item according to behavior that could be rated, counted, or both. For example, "teacher gives clear and complete instructions for taking test" would be a ratable item; "teacher rephrases or restates student response" would be coded a countable item; and "teacher illustrates main ideas by use of example" would be a ratable or countable item (Baral, Snow, Allen 1968: 6-7).

The entire pool was reviewed and edited to eliminate redundancy, and a standard format for the item statements was adopted. Items were stated in terms of teacher behavior. All ratable and countable items were written in positive terms. Countable items were written in the present tense, singular in number (Baral, Snow, Allen 1968:7).

The final step in the Stanford study was to produce

the prototype of a computer-based item pool for the development of a computerized observation system. Only an elementary coding system was applied. Each item stored in the computer contained three codes--the item number, the item statement itself, and the classification of the item as ratable, countable, or both. Thus two programs resulted. The first allowed a researcher or observer to select only those specific items which he needed to examine or use on a given research project. The second allowed an observer to request the computer to generate a rating form, consisting of up to twenty-five ratable or countable items for a single observation, which he could then use in his classroom observation.

The Stanford taxonomy was relatively successful in its main objective--to create a model for a universe of teaching behaviors and to suggest at least a possible use for this universe in classroom observation--but it was of limited practical use as a fully operational teacher observation system. The item pool was not comprehensive, and it developed without an organizing structure which would have made it manageable. The 1500 items were finally arbitrarily classified in nineteen sections, each given only tentative descriptive labels such as "Personal characteristics of the teacher"; "Speech, voice, gestures, language patterns"; "Lesson planning, goals,

aims"; "Evaluation"; and "Motivation" (Baral, Snow, Allen 1968:25). The researchers attempted further to classify the item pool in terms of other existing category systems, such as those developed by B. Othanel Smith and M. O. Meux (1962) and M. Karl Openshaw and Frederick R. Cyphert (1966). They discovered, however, that none of the category systems used was broad enough to encompass the entire range of items in the Stanford taxonomy. Thus even the attempts to organize the preliminary item pool were merely exploratory.

Furthermore the classification system could only loosely be called a taxonomy. The classes of behaviors and their labels were not determined with any degree of exactness. Benjamin S. Bloom has remarked that "since the determination of classes and their titles is in some ways arbitrary, there could be an almost infinite number of ways of dividing and naming the domains of educational outcomes" (1956:13). But if, as Bloom has suggested, the main purpose in constructing any taxonomy is "to facilitate communication," then one must conclude that the more precise the classes and the more exact the items fitting into those classes, the less room there is for conceptual overlap and the greater the degree of the taxonomy's usefulness in communicating the world of classroom behavior. The Stanford taxonomy terminated with a preliminary classification scheme which suggested a direction to be taken

but stopped short of producing a functional or even a manageable system that might have proved useful to educational researchers.

Aims and Rationale of the Task Analysis System for Educational Personnel Development

In the summer of 1970, Dwight W. Allen, one of the members of the Stanford taxonomy study group, initiated a project at the University of Massachusetts School of Education designed to extend the original Stanford study. The purpose of the new project was to develop a comprehensive, computer-based item pool of teaching behaviors with potential for serving a variety of educational needs. The project was funded under the United States Office of Education (U.S.O.E.) through a joint grant by the Career Opportunities Program and School Personnel Utilization Leadership Training Institutes (COP-LTI, SPU-LTI). Richard E. Snow (Stanford Center for Research and Development in Teaching) and later Francis Thomas Sobol (Florida International University) served as chief consultants and theoreticians, and the writer coordinated the research and development activities at the University of Massachusetts School of Education.

The initial rationale for the project, because of the sources of funding, was its usefulness in terms of the

educational personnel development needs of the various COP, SPU, and BEPD (Bureau of Educational Personnel Development of the Office of Education) programs in the country; therefore the project was identified as the "Task Analysis System for Educational Personnel Development."

The task analysis project inherited a host of questions not answered by the earlier Stanford study: how to expand the item pool to make it not only more exhaustive but applicable to all educational personnel; how to keep the items objective, representative of observable behaviors and skills, and not a reflection of subjective bias; how to correct the imbalances in the Stanford item pool; how to avoid limiting the items to the sort which have appeared in previous observation instruments and studies; how to review the pool of behaviors for subtle redundancies; how to organize a universe of teaching behaviors into manageable segments and avoid conceptual overlap; and, finally, how to put the system to uses besides computerized teacher evaluation. The University of Massachusetts project did not begin as a pioneering study. Rather, it was an extension, an outgrowth, and a maturation of the Stanford Taxonomy of Teaching Behaviors.

From the beginning the conception of the project and its usefulness was broader than the earlier study.

Task analysis was adopted as a means by which observable teaching behaviors could be systematically identified, generated, and recorded, computerized, and stored for easy retrieval for multiple educational purposes. It was hoped that the system would be flexible enough to be of use in the determination of specific performance criteria for school personnel, in the design of training programs, and in the evaluation of personnel performance, as well as in the definition of new staffing functions, roles, and patterns, and in the establishment of selection criteria for people in new staffing roles. The system was intended to incorporate all rating and observation instruments and current categorization structures to fit the needs of any individual supervisor or educational researcher.

Problems and Procedures in the Task Analysis Project

The University of Massachusetts project recognized from the start the limitations of the Stanford taxonomy and the questions it left unanswered. The project staff members felt that the item pool itself was, in many ways, independent of any projected uses--that indeed to project its possible uses in the beginning might be to create a biased framework or model which would limit the generation

of items. Since the Stanford pool was far from exhaustive and severely limited to the traditional classroom teacher, the staff had to determine first the positions to be included and then the means of collecting data on those positions to make the item pool as comprehensive as the original study had visualized.

A situation-by-position matrix (Appendix A) was developed as the best means to break down an undefinable mass into defined units of observation and analysis. The educational positions along the top line of the matrix represented a continuum from parent volunteer to master teacher; included were various differentiated staffing roles as they are currently defined, support personnel, both school and community-wide educational administrators, community resource volunteers, and paraprofessionals. Thirty-eight educational positions were identified. No division was recognized between nonprofessional and professional; hence no value judgments were made regarding educational personnel.

On the other axis of the matrix were lined up twenty-four situations. Among these were learning management, tutoring, lecturing, small group discussion, large group discussion, teacher training, student diagnosis, and school governance. The matrix was flexible enough for either positions or situations to be deleted, incorporated into others, or added at any time. The

staff produced over a thousand situations by positions and could zero in on any given cell in order to observe and write behavioral items. In this way the University of Massachusetts project was better able than the Stanford taxonomy study to discover those weak areas which needed to be developed.

Before beginning the task of writing behaviors it was necessary to find a way to avoid those items which would merely reflect the bias of a given instrument, author, observer, or resource. Task analysis, as a means of collecting objective observable behaviors, was adopted partly because little work has been done on the application of task analysis to educational research. But, more importantly, it was decided that task analysis was the best means to avoid theoretical positions, predetermined models, and broad generalizations of behaviors, and instead to focus on behaviors in their most elemental form. Moreover it seemed that teacher roles might best be defined in terms of their functions.

Task analysis is essentially simple. Vivian C. Jackson describes it succinctly as "basically the process of dividing a job into its various parts," and as "a systematic procedure for compiling an inventory of comprehensive and mutually exclusive functions and tasks" (1971:ii). Sidney A. Fine and Wretha W. Wiley have stated that "the basic unit which must be understood in

order to describe jobs is the task" and that task analysis is "concerned with what a worker does, and not with the results of the worker's action or what gets done" (1971: 9, 13).

In the context of the University of Massachusetts project task analysis presupposes the collection of only observable behaviors. Great caution was taken to avoid the inclusion of any presumed behavior which was not actually observable. Fine and Wiley point out the dangers of subjectivity:

> . . . each person who hears the process name, "counseling," may--and does--subjectively interpret its meaning from his own point of view and experience. But it is likely that each interpretation will be different; and the system runs the risk of breakdown as the trainer trains from one understanding, the supervisor evaluates from another, the recruiter acts from still another, and the worker must--consciously or unconsciously--reconcile all these differing instructions and expectations with his own understanding of what he should be doing (1971:8).

They also suggest that avoiding process words like interviewing and counseling for the use of "explicit action verbs" to describe behavior not only helps to differentiate what the worker does from the outcome of the behavior but contributes later to a common language used by the recruiter, the supervisor, and the worker (1971:8). From the outset similar conclusions guided the project staff,

and behaviors were written with positively stated action verbs; the use of the forms of the verb to be was severely restricted. Even the item "teacher exhibits rapport with students" represents a composite of behaviors, all of which task analysis would itemize separately. This level of specificity has not been approached in previous studies. It has positive implications for the eventual determination of the psychological requirements of jobs with respect to personnel selection specifications, training development, and job evaluation. The importance of this psychological dimension, however, has only relatively recently been recognized.

A set of simple procedures was developed as an approach to producing a comprehensive item pool. The Stanford taxonomy was a starting point. Whole sections were deleted; for example, the category "Personal characteristics of the teacher" was seen to reflect the specific value judgments of the observer, and certain items under "Speech, voice, gestures, language patterns" which appeared to harbor class, race, or other subjective biases were taken out. Other items had to be rewritten in more specific behavioral terms. Most of the items were relevant only to the classroom teacher, and the matrix demanded increased differentiation.

Job descriptions were collected according to the

situation-by-position matrix, which included the job activities and behaviors of teachers, paraprofessionals, aides, administrative and school personnel in a variety of situations--classroom, planning and preparation, extracurricular, teacher supervision, research, professional, parent conference, student supervision, and so on. Behavioral items on these jobs were gathered by four means. First, the existing literature on conceptions of differentiated staffing, taxonomies and other categorizations of teaching behavior, speculative discussions of future changes in human educational roles and functions, and classroom teaching behavior were reviewed. Second, a sample population of those who perform the various job activities was asked to respond to a questionnaire, developed by David Berliner (currently of the Far West Laboratory), by describing what they do, first in global terms and then in terms of specific activities or tasks (Appendix B). Third, raw descriptions from selected informants, collected by tape and transcription, were added to this pool of data. Finally, actual educational situations were observed and items were generated on the spot.

The information collected was gradually distilled or synthesized into items of behavior, because of computerization usually limited to from sixty to eighty computer characters in length, and in turn coded and incorporated

into the main descriptor item pool. Coding was fairly elementary, although more sophisticated than it had been in the Stanford taxonomy. Each item was automatically coded according to situation and position and then given an additional code specifying whether it was a general behavior or a behavior specific to the situation and position. There was no attempt at quality control in the writing of items during the initial stage; a systematic review to eliminate redundancies was seen to be a process which could be handled better and faster by computer at a later stage.

At the end of Phase I, in the summer of 1971, the task analysis project had produced a pool of over 5000 descriptors of job activities and teaching behaviors. It had a set of computer programs which insured flexibility, since items could be added, modified, or deleted from the pool at any time. It could generate lists of job-task statements according to position, situation, or key word, general or specific behaviors; moreover it had an instructional observation category and could generate an observation-rating form.

Although the item pool represented a considerable advance over the Stanford taxonomy, it still was not an exhaustive collection of behavioral descriptors. During Phase II (1971-1972), therefore, the item pool was doubled to nearly 10,000 descriptors of teaching behavior. While

as many items of teaching behavior as possible were generated, it was a major goal of Phase II to apply a form of quality control to the entire item pool in order to obtain discrete behaviors. Under Phase II the complete item pool was reviewed and edited. A program was written to retrieve all items according to every major term in each item (a "keyword-in-context" index) in order best to compare the many possible nuances between items. This produced a list of approximately 50,000 items (more than 1200 pages of standard computer output) which then had to be thoroughly explored. By eliminating, rewriting, and combining items, redundancy was greatly reduced. The refined item pool contains approximately 7000 discrete items of teaching behavior.

As a result of Phase II expansion, refinements, and programming, a system now exists for programming alternative organizational systems using a common data base of teaching behaviors to meet the needs of educational personnel at all levels. As such the task analysis system has stretched far beyond its modest beginnings. Besides meeting the practical needs of COP, SPU, and other BEPD projects, it provides a data bank of teaching behaviors which can serve as an empirical base for objective and flexible observation and supervision systems. It has become the behavioral universe to which facet theory and design can be applied in order to open up new areas of educational

research in the dimensionalization of teaching behavior.

C H A P T E R III

CATEGORIZATION OF TEACHING BEHAVIORS: APPRAISALS OF MAJOR STUDIES

Introduction

The categorization of teaching behaviors has been discussed in studies of major importance by Benjamin S. Bloom and others (1956), Donald M. Medley and Harold E. Mitzel (1963), and Bruce J. Biddle (1967). These studies, in calling attention to the inadequacies of many observation systems developed in the past, indicate that a comprehensive system must be regarded as a significant advance in educational research. They cast light on the development of a comprehensive system in several other ways. First, they suggest some of the problems inherent in the creation of an item pool of teaching behaviors and some of the challenges to be faced in any new study of classroom teaching behavior. Furthermore they reveal and synthesize the concerns of past researchers, which must be considered before taking a new direction in research on teaching. Finally the studies lead directly to the current consideration of facet theory as one of the most notable developments in educational research.

Donald M. Medley and Harold E. Mitzel

Donald M. Medley and Harold E. Mitzel have produced one of the best reviews of empirical research on classroom interaction and behavior in their 1963 study "Measuring Classroom Behavior by Systematic Observation." Previously little scholarly work had been done on correlating the various research projects and studies in classroom interaction. Medley and Mitzel point out that the dominant feature of classroom observation techniques has been the tendency to describe in quantitative terms whatever happened in the classroom, whether or not the behaviors had anything to do with teacher effectiveness or psychological theory (1963:274). They argue that "the strengths and weaknesses of an observational technique inhere mainly in the items of which it is composed" (1963:277). Therefore there is an ever-present danger of recording, in retrospect, the observer's impressions of a teacher's behavior rather than specific incidents, unless observers have adequate observational instruments to use in the classroom which reflect a range of possible behaviors to be observed. They note, however, that there existed "no well-established, organized theory or methodology for the measurement of classroom behavior" (1963:297) which would reduce the tendency to record everything that went on in the classroom and would help to create an instrument

composed of only those behaviors relevant to actual classroom incidents.

Most previously used classroom observation instruments, Medley and Mitzel have discerned, are either category systems or sign systems. Category systems "limit the observation to one segment or aspect of classroom behavior, determine a convenient unit of behavior, and construct a finite set of categories into one and only one of which every unit observed can be classified." Sign systems "list beforehand a number of specific acts or incidents or behaviors which may or may not occur during a period of observation" (1963:298). Category systems are meant to be exhaustive of the type of teacher behaviors recorded; within any given category of behaviors the observer is expected to record every behavior the observed teacher exhibits. In sign systems, by contrast, an observer checks off only predetermined behaviors of the teacher.

Observation instruments, Medley and Mitzel indicate, are usually limited and tend to express their authors' narrow conceptions or biases. This is particularly true of category systems. Medley and Mitzel divide category schemes into those which are governed by some kind of theory and those which are not (1963: 298). Among the systems governed by a theory, for ex-

ample, Ned Flanders (1960) views teaching behaviors as exhibiting either direct or indirect teacher influence; John Withall (1949) sees teacher behaviors within the confines of three distinct areas--teacher-, pupil-, or learning-centered. Instruments with no theory to determine what behaviors to look for resulted in random recordings of classroom behaviors.

Category systems, consisting of a few categories into which all observed behaviors are somehow classed, thus usually reflect the specific viewpoint or relatively narrow theoretical conception of the designer. Sign systems, consisting of lists of teacher behaviors which may or may not be observed in particular settings, are meant to be broadly inclusive, unrestricted by predetermined theories.

A cursory consideration of these types of systems leads one to conclude that their usefulness is limited. Category systems provide only a small set of categories. Medley and Mitzel point out that few systems of this type employ more than ten; they conclude that, in order to be more comprehensive, it is probably "preferable to err by having too many categories than too few" (1963:300). Sign systems, emphasizing predetermined behaviors and incidents, obviously cannot be as complex as is teacher behavior; therefore they tend to allow many significant statements of teacher behavior to go unrecorded. One can conclude,

moreover, that any one of these classification systems must compromise between a designer's predilections and the multifarious functions in classroom observation, as well as between desired data and the resources to obtain it.

Medley and Mitzel's own work in developing the OScAR (Observation Schedule and Record) system in the late 1950's was an attempt to find a means to employ items from both the category and sign systems. The purpose of OScAR was to allow an observer to record as many aspects of what goes on in the classroom as possible, regardless of whether the incidents were related to any category, scale, or dimension (1963:280-81). But OScAR did outline three dimensions of classroom behavior representing "what are probably the most obvious differences among classes--how orderly and relaxed they are, in what ways the pupils are grouped, and the general content of the lessons being taught" (1963:286). This instrument represents a significant advance toward a comprehensive system that will encompass multiple observation techniques and objectives.

Medley and Mitzel's study remains today an important review of classroom interaction studies and instruments. It identifies the principal strengths and weaknesses of classroom observation techniques, and it brings organization to a somewhat chaotic area of educational research,

suggesting thereby new directions in classroom observation studies. It indicates the complex nature of classroom behavior, and, finally, it argues for the application of systematic observation procedures in measuring the many dimensions of classroom behavior.

Bruce J. Biddle

Bruce J. Biddle's 1967 study "Methods and Concepts in Classroom Research" builds upon the foundation of Medley and Mitzel's earlier work. Biddle analyzes the problems related to the multiplicity of teacher observation systems by focusing on five specific aspects of classroom research--coverage, methods of data collection, units of analysis, conceptual posture, and concepts employed by the researchers. In the process he is able to bring together a wide array of research studies and to specify their exact aims and areas of attention. His work sums up many of the concerns of present researchers.

By dealing with the problem of coverage Biddle attempts to show the limited focus in classroom research. The areas of interest he identifies in all major investigations before 1967 are concerned with grade level, subject matter, the social class of pupils, pupil achievement, pupil adjustment, variables related to the age and sex of the teacher, teacher training, nationality

differences, and the phases of the school year. Most of the studies were unique to the type of classroom investigated, and only a few variables were dealt with. As a result our understanding of classroom interaction in general is limited (Biddle 1967:337-338). By isolating what is covered in a classroom study, Biddle suggests that we can predict a study's limitations, and he therefore concludes that "any reasonably complete study of classroom phenomena should cover a wide variety of classroom conditions and variables" (1967:338).

Biddle goes on to explore the wide variation in methods of data collection in classroom studies. He defines two separate processes of analysis: behavioral recording, which occurs "when behavior events are 'frozen' into a permanent record such as sound or visual recording, and behavioral encoding, which occurs when behavioral events or records are converted "into a form suitable for counting and tabulation" (1967:338). Biddle terms the three main methods of data collection nonparticipant observation, observer rating, and behavioral recording, within which the analytical processes of behavioral recording or encoding may be employed.

Nonparticipant observation is obviously the most commonly used method of data collection; this occurs when "the behavioral scientist enters a new social system unobtrusively to take detailed, nonsystematic notes and to

develop insights about the culture of the system" (Biddle 1967:338). To develop insights is to preclude the use of behavioral recording or encoding; insights are in the mind of the observer, mixed with processes of data analysis and synthesis, and do not produce replicable results. Thus Biddle concludes that, although nonparticipant observation offers the best means for discovering new concepts and relationships in classroom behavior and interaction, its usefulness is limited because it produces no replicable results for testing hypotheses (1967:338).

Observer rating employs the systematic encoding of behaviors. Medley and Mitzel identify three varieties of observer rating--postsession rating, in which the impressions of a teacher's behavior are recorded in retrospect rather than on the spot, sign observation, and category observation (1963:277, 298-99). Biddle sees postsession rating systems as useless in the study of classroom interaction because they rely solely on impressions recalled by the observer rather than on actual events. Sign observation systems are highly unreliable in their encoding process because the predetermined lists are too frequently composed of arbitrary incidents, and the systems are designed to take ratings in arbitrarily fixed units of time. Category observation systems, Biddle indicates, are reliable and useful for the study of classroom behavior because they are more flexible than

sign systems and can be applied to a greater variety of classroom events. But he concludes that all observer rating systems suffer from "observer loading," since, regardless of the overall extent of the observation instrument itself, any observation will reflect the restricted number of classroom events on which a given observer is able to focus (1967:338-40).

Classroom studies are shaped not only by the type of classroom environment selected for observation and the methods of data collection adhered to, but also by the specific unit of analysis chosen by an observer. Biddle identifies at least four units of analysis employed in the majority of classroom interaction studies: arbitrary units of time, selected naturally occurring units, phenomenal units, and analytic units.

Many of the principal classroom investigators, among them Ned Flanders and Medley and Mitzel, have chosen arbitrary units of time as the basis for their analyses. Observer judgments should be made every three seconds, according to the Flanders technique, or, according to Medley and Mitzel's system, a record of signs should be made every three minutes. The main defect of basing analysis on units of time, Biddle observes, is that "however long or short the unit chosen, classroom events may be operating at another rhythm, and encoding

is different when the events 'break' on or between the arbitrary unit boundaries" (1967:341).

Selected naturally occurring units, by contrast, are "not only distinct from one another in time but also evidence an internal envelope; they have initiatory, consummatory, and closing phases" (Biddle 1967:341). By this method observers can focus on entire units, like the lecture. This form of unit, however, appears to have been used rarely; Biddle refers to only one study, which focused on deviancy-control units--that is, when a teacher identified and followed through with a problem related to an unruly student. He believes this form of unit will remain limited as long as it avoids "the ongoing stream of classroom events" (1967:342).

Biddle describes the phenomenal unit as the natural break "in the stream of classroom processes that may reasonably be assumed to be recognized by classroom participants" (1967:343). Phenomenal units evidently differ from what he terms selected naturally occurring units in that the latter can be identifiable units within the broader phenomenal unit; a phenomenal unit may be seen, for example, as a segment and "classroom segments are marked by the gross breaking points in daylong classroom activities, as when a teacher shifts subject matters, or when the collection of milk money is replaced by show

and tell" (1967:343). This kind of division suggests the need for describing social processes, but, as Biddle implies, we require a common vocabulary to describe these processes unambiguously (1967:343).

Analytic units most frequently reflect the conceptual assumptions of the investigators. Such units of behavior are defined analytically, according to the way investigators conceptualize them and provide rules for their identification. For example, an episode is one or more exhanges between two or more speakers which constitute a completed verbal act; a reciprocal episode is an exchange between a teacher and a student on a single subject; or an exchange between a teacher and several pupils may be variously termed a coordinate episode, an incident, a teaching cycle, or a teaching episode (Biddle 1967:342). These units are expressed in abstract terms; they "may or may not be recognized as 'natural' units of classroom discourse by participants" (Biddle 1967:342).

Biddle, on the one hand, cautions that the analytic unit--applied only to interaction, which is only one form of teaching behavior, and expressed in terms that only researchers can grasp--"entails the risk of moving away from phenomenal reality and the problem of having to translate results into some convenient form usable by educators" (1967:342). On the other hand, Biddle suggests

that the analytic unit may be the most fruitful unit to use if it is not adopted as a single unit for one type of behavior but if several separate analytic units are used for different types of data desired. Moreover, the analytic unit may be the type most compatible with the use of the computer in educational research, as the computer will be able to generate complex sequences of behaviors or analytic units to reflect the complexity of classroom behavior; and this will help to create an "analytic vocabulary of concepts for describing classroom processes" (Biddle 1967:344).

Biddle's contribution to the discussion of methods to be applied in classroom research lies in this suggestion that analytic units, and the subsequent development of a synthetic, empirically-based vocabulary of concepts, should be employed to describe classroom processes and behaviors. This has significant implications for the application of facet theory and design in educational research, which will be discussed later. Biddle argues persuasively that using analytic units will help in expanding classroom research studies if they are released from their previously narrow focus on classroom interaction. They also have the potential of being unrestricted to any single model. But Biddle goes beyond these modest suggestions on units of analysis to raise a host of questions related to the use of concepts in classroom studies.

The first of these questions is both obvious and fundamental in any kind of behavioral analysis. Biddle asks, "What should be observed--the intent of behavior, its objective characteristics, or its effects?" (1967: 344-45). Concerning the implications of assuming a conceptual posture in classroom observation, he writes,

> At the individual level, it is legitimate to code intent, objective characteristics, or effect of behavior. If one is interested only in the determinants of teacher behavior, for instance, then judgments of teacher intent are appropriate. If one is solely concerned with teacher competence, judgments of the effect of teacher behavior on pupils would be more appropriate. If, however, one's concerns are broad and one is interested in testing competing models of interaction or in studying both individual and social determinants of behavior, it would be wise to emphasize the study of objective characteristics of behavior. Indeed, it may be argued that although our vocabulary is replete with intentional and effectual words, the cues by which we make these judgments are drawn from overt performance characteristics (1967:345).

The problem of conceptual posture in classroom studies is complex. For example, on the social level it is indeed true that "inductive assumptions" can determine to a large extent the data received from observation and rating instruments (Biddle 1967:345). The effects of teaching behavior are difficult to note because they can often be seen only outside the classroom. Moreover, conceptual posture tends to lead an observer to infer be-

haviors which are not actually observed, the inferred behaviors being only manifestations of the observer's preoccupations. Thus data may be unreliable as well as limited. Biddle's direct contribution to the University of Massachusetts task analysis system, therefore, was to influence the decision to collect only observable behaviors by concentrating on the objective characteristics of teaching behavior.

Another problem illuminated by Biddle, to which we referred briefly in Chapter II, is that of conceptual overlap in classroom studies. He takes the example of teacher performance to show how, "although the concepts utilized appear to cover an enormous conceptual territory, in actuality only three basic teacher characteristics appear to be dealt with"--teacher action, i.e., "concepts describing the immediately observable activities of the teacher"; manners, i.e., "the way in which teachers conduct their behavior"; and characteristic roles, i.e., "the relatively stable patterns of behavior exhibited by teachers in various classroom situations" (1967:346-47). Furthermore he analyzes the several existing lists intended to be exhaustive of teacher performance behaviors, only to discover that "additional concepts for teacher performance are found in any given list that do not appear on other lists"; he identifies conceptual overlap between items educational researchers had listed as actions, man-

ners, and characteristic roles (1967:347). This, of course, suggests the need for an analysis of the underlying conceptual structures used to define categories in order to relate encoded teacher behavior to the full range of classroom data collected thus far. "Indeed," Biddle concludes, "the proliferation of similar but not identical lists for categorizing teacher performance suggests that the investigators themselves do not know what to make of findings that are presented for these lists" (1967:348). It appears that Biddle would move in the direction of creating a common vocabulary useful in relating one researcher's findings to another.

Benjamin S. Bloom

Benjamin S. Bloom's Taxonomy of Educational Objectives--The Classification of Educational Goals (1956) provides what many consider to be a definitive taxonomy which helps to establish a common vocabulary. But the taxonomy is designed "to be a classification of the student behaviors which represent the intended outcomes of the educational process"; it does not attempt "to classify the instructional methods used by teachers, the ways in which teachers relate themselves to students or the different kinds of instructional materials they use," but only to classify "the intended behaviors of students--the

ways in which individuals are to act, think, or feel as the result of participating in some unit of instruction" (Bloom 1956:12). Thus Bloom's taxonomy can be seen as an early attempt to find a useful categorization scheme for classroom research. As such, however, it is not exhaustive of teacher or classroom behaviors and raises another major problem brought out by Biddle and as yet untouched by educational research--how to create an exhaustive list of teaching behaviors which can contribute to the evolution of an analytic vocabulary for educational research and the analysis of teaching.

Summary

In sum, what has the work of Medley and Mitzel, Biddle, and Bloom contributed to our present state of classroom research? Medley and Mitzel and Biddle have cogently summarized the strengths and weaknesses of classification and observation systems. Medley and Mitzel have furthermore pointed the way toward systematic observation of classroom behavior, emphasizing the importance of the behavioral items themselves as indicators of the strengths or weaknesses of observation instruments and suggesting the use of explicit behavioral descriptors in classroom research. Biddle, by focusing on specific problems of classroom research, indicates

the complexity of any would-be comprehensive behavioral system. He points out the need to concentrate on the objective characteristics in the observation of teacher behavior. He also implies the need for a comprehensive item pool of teaching behaviors and is one of the first educational researchers to propose the application of facet theory to the creation of such an exhaustive system as a solution to the current multiplicity of observation instruments. Bloom impresses upon us the necessity of creating a common language of teaching behaviors and a category system that adheres to basic taxonomic principles in order to ensure a concise and common vocabulary. Finally, all the writers under review either tacitly or overtly lead us to the current consideration of the application of facet theory and design to a universe of teaching behaviors as a means both to make that universe exhaustive and to give it a manageable structure.

CHAPTER IV

FACET THEORY AND DESIGN

Theoretical Studies

One of the major conceptual problems in research on teaching, as indicated in the preceding chapters, is that of defining the dimensions of teaching. Category systems are one way of discovering those dimensions. Since simply to have a vast pool of teaching behaviors is insufficient and of little benefit to anyone, categories can give meaning to whole blocks of behaviors, reducing them to groupings of manageable units. But category systems are inadequate for multiple educational purposes if the behaviors overlap the categories and the categories themselves, because of imprecise language employed, fail to reflect accurately the various areas of behavior. To be able to define the dimensions of teaching, categories of teacher behavior must be, as Nathan L. Gage has pointed out, "mutually exclusive and yet reasonably exhaustive of the domain of significant teacher behaviors" (1969: 1451). Thus Gage sees the facet design and analysis developed by Uriel G. Foa (1965) and promoted by Bruce J. Biddle (1967) as a "promising approach" to the problem of dimensionalizing teacher behavior.

Louis Guttman. Uriel G. Foa's work on facet design and analysis is built on the theoretical premises of Louis Guttman (1954). "Recognizing that differential relations exist within and between varieties of behavior," Guttman has recently stated, "the challenge to the social psychologist is to reveal what structural system, if any, underlies all these relations" (1970:57). The significance of Guttman's work lies mainly in his conception of "order among variables" (1954:340). Once a universe of content on a specified problem is defined, Guttman posits the existence of a minimum number of irreducible principal components, or what we might call exclusive dimensions; within these, by the principle of contiguity or neighboring, the combinability-separability of discernible elementary components will reflect a functional interdependence among the variables in that universe of content (1954:340). In short, he puts forward the concept of "ordered-bonds" (1954:345-46). A fixed, small number of principal components are viewed as facets, different in kind and by degree from one another (1954: 340). Within these there exists an infinite number of elementary components which can combine or separate; clusters of all these discernible components can help to define the dimension itself (1954:348, 337-39).

For our purposes, the real importance of Guttman's work is that, once a universe of teaching behaviors is

defined and a mathematical notation coding system is designed to recognize the elementary components making up the principal components, the underlying order itself will be revealed mathematically; the combinability or separability of the behaviors, the component elements, will define the variables. Thus the two steps he suggests are defining the world of content and discovering the order among the variables which can be proved mathematically. Hence Guttman reveals a direction in creating an item pool exhaustive of teacher behaviors and a way of dimensionalizing those behaviors.

Uriel G. Foa. On the basis that "a necessary criterion . . . for a good theory is that it should lead systematically to the correct prediction of empirical results," Uriel G. Foa attempted to test facet design and analysis (1965). He first explains the term facet as introduced and used by his predecessor. Guttman had suggested that the defining of variables could be formalized by adopting the notation of the Cartesian product; he used the term facet for a component set of the product. Foa, relying on W. Stephenson's example of Jungian types from The Study of Behavior (1953), explains Guttman's theory graphically, as seen in Table 1.

TABLE 1.--Guttman's Facet Theory as Applied by Foa to Jungian Personality Types

FACETS	ELEMENTS
A (Attitudes)	a_1 introversion
	a_2 extraversion
B (Mechanism)	b_1 conscious
	b_2 unconscious
C (Function)	c_1 thinking
	c_2 feeling
	c_3 sensation
	c_4 intuition

The Cartesian product ABC comprises all possible combinations in a set of sixteen types, such as $a_1b_1c_1$ (conscious introvert thinking) and $a_1b_2c_1$ (unconscious introvert thinking) (Foa 1965:263). Different definitions will produce different facets which will turn out different similarity patterns. However, facet design "does not tell, a priori, which facets should be spelled out in the definition," Foa points out, "as the choice of facets is a substantive rather than a methodological problem"; what facet analysis can do is to permit "a test whether a particular facet design produces similarity patterns

which are confirmed by empirical results" (1965:264).

Foa proposes two new concepts to advance facet theory. The first is the principle of contiguity, by which he explains "that variables which are more similar in their facet structure will also be more related empirically" (1965:264). Thus Foa would predict that, in Table 1, $a_1b_1c_1$ (conscious introvert thinking) and $a_1b_1c_2$ (conscious introvert feeling) are more related than $a_1b_1c_1$ (conscious introvert thinking) and $a_2b_2c_2$ (unconscious extravert feeling). He concludes that the empirical relationship is predicted from the similarity pattern of the facet elements (1965:264); hence his first contribution to facet theory is to indicate the predictive power of facet design and analysis to identify variables rather than, as Guttman would use it, simply to explain relationships among variables.

But Foa goes beyond this to suggest a second hypothesis, that "variables having more facet elements in common will be more related than variables having fewer facet elements in common" (1965:264). Variables can be ordered into a kind of hierarchy establishing certain relationships. For example, Table 2 shows what would happen to the initial ordering if this principle were applied to the facets seen in Table 1.

TABLE 2.--Empirical Relationships Among Variables Based on the Principle of Contiguity

$a_1b_1c_1$	(conscious introvert thinking)
$a_1b_2c_1$	(unconscious introvert thinking)
$a_1b_2c_2$	(unconscious introvert feeling)
$a_2b_2c_2$	(unconscious extravert feeling)

From Table 2 we see that the first variable is most similar or contiguous to the second, which differs only in the element of facet B; the second equally close to the first and to the third, which differs from the first variable in the element of facet B and facet C but from the second only in the element of facet C. Briefly, Foa suggests that the principle of contiguity establishes empirical relationships among variables, that variable 1 will relate most to variable 2, less to variable 3, and so on; and that variable 2 will relate most to variables 1 and 3, less to variable 4, and so on (1965:265).

However, when a series of variables is defined by dichotomous facets, a specific order cannot be predicted unless and until "the principal component of each facet and the first variable of the order" are identified (Foa 1965:268). To explain this Foa uses the example of

interpersonal behavior defined as "the Cartesian product of the observer by the perceptual and behavioral facets" (1965:268), as indicated in Table 3.

TABLE 3.--Concept Differentiation by Facets When Principal Components of Each Facet are Defined

Perceptual Facets	Elements	
Facet A (the person doing the action, or the actor)	a_1	the other (nonobserver)
	a_2	the self (observer)
Facet B (the level)	b_1	actual (what is done)
	b_2	ideal (what ought to be done)
Facet C (the person from the point of view of whom the action of a given actor is perceived, or alias)	c_1	the other (nonactor)
	c_2	the self (actor)
Behavioral Facets		
Facet D (content of behavior)	d_1	acceptance or giving
	d_2	rejection or taking away
Facet E (object of behavior)	e_1	the other (nonactor)
	e_2	the self (actor)
Facet F (mode of behavior)	f_1	social or status
	f_2	emotional or love

As we see in Table 3, the Cartesian product ABC defines eight perceptual types, and the Cartesian product DEF defines eight behavioral types. According to Foa's theory, to predict the eight perceptual types when the behavioral type is constant, and vice versa, it is necessary to know the principal component of each facet. Foa decided the principal components on the basis that "these facets of interpersonal behavior develop at different stages of the process of socialization in the child" (1965:268). And he adds,

> Among perceptual facets it is suggested that differentiation between actors will develop first, followed by differentiation between levels and then between aliases. In the behavioral facets the suggested sequence of development is content, object, mode. Each successive differentiation is obtained by a subdivision of the previous concept according to the new facet. In the behavioral facets, for example, the first differentiation is, by content, into acceptance and rejection. At the second stage each one of these concepts splits into two new concepts according to object: acceptance of other and self, rejection of self and other. In the next stage each one of these four concepts is again dichotomized by the mode facet into social and emotional acceptance (or rejection) of self (or other). This three-stage dichotomization suggests a circular order of the variables in which the first facet of the sequence behaves as the first principal component, the second facet as the second component. . . . The sequence of concept differentiation by facets corresponds to the order of the components (1965:269).

Thus, defining the principal component is integral to concept differentiation by facets, and this remains "a substantive rather than a methodological problem" (1965: 264). Accordingly, the order in Table 3 can be predicted as demonstrated in Table 4. This table reflects the relationships between a variable and every other variable within the set labeled interpersonal behavior.

TABLE 4.--Predicted Order of Variables from Table 3

Perceptual Types	Behavioral Types
$a_1b_1c_1$	$d_1e_1f_1$
$a_1b_1c_2$	$d_1e_1f_2$
$a_1b_2c_2$	$d_1e_2f_2$
$a_1b_2c_1$	$d_1e_2f_1$
$a_2b_2c_1$	$d_2e_2f_1$
$a_2b_2c_2$	$d_2e_2f_2$
$a_2b_1c_2$	$d_2e_1f_2$
$a_2b_1c_1$	$d_2e_1f_1$

Source: Foa 1965:267

Another problem emerges, however, when we try to

establish the relationships between a variable and the set as a whole (Foa 1965:270). Foa sees the set "interpersonal behavior" as a subset of the larger dimension of "behavior," under which a second subset "personal behavior" also appears. He defines personal behavior as that "which does not require the actual or potential participation of more than one person in order to occur" (1965:270). Hence variables can belong to an interpersonal set or a personal set. Foa explains,

> Thus in the actor, alias, object facets the element _other_ defines variables belonging to the interpersonal set only, while the element _self_ defines variables which also belong to the personal set.
>
> Likewise, the element _social_ of the facet mode defines variables belonging to the interpersonal set only, while the element _emotional_ indicates variables belonging to both sets.
>
> A partition of the interpersonal set is suggested by the elements of the remaining two facets, content and level. Variables with elements _acceptance_ and _actual_ must occur in interpersonal behavior, while variables with the elements _rejection_ and _ideal_ may or may not occur. Rejection and ideal are not necessary for the occurrence of interpersonal behavior (1965:270).

Foa labels those facet elements belonging to only the interpersonal set as _specific_ and assigns them the subscript 1. Facet elements belonging to the personal set, on the other hand, while they are significant to

personal behavior, are less significant to interpersonal behavior under consideration and are therefore labeled nonspecific and assigned the subscript 2 (1965:271). Foa proposes that this type of classification of the elements of facets leads to the prediction of multiple correlations between a variable and the other variables in a set (1965:271). From his own empirical studies, he concludes that "variables containing the specific element are more strongly related to the set than those which do not contain it" (1965:271). He implies, however, that further study of nonspecific facet elements may lead to a greater understanding of the relationship between different areas. And he suggests that "the nonspecific elements may be seen as a link between a particular area and other neighboring areas" (1965:271).

Thus Foa shows us how to predict relationships and thereby to establish an order among facet elements. By the principle of contiguity variables similar in their facet structure can be ordered according to the commonality in the facet elements. Variables in dichotomous facets can be ordered by defining the principal component of each facet and the first variable of the order and then by applying the principle of contiguity. Moreover Foa indicates how sets of variables in dichotomous facets can be part of a larger dimension, in which case the variables can be ordered by assigning subscripts to the

facet elements as specific or nonspecific, relative to the set under consideration, and then by applying the principle of contiguity. The empirical results of these facet designs are various mathematical or conceptual structures, which can prove the correctness of a given facet design or show those facet elements that need to be altered, revised, or eliminated. Foa cautions that systematic facet design does not itself guarantee that data will sustain any hypothesis, as alternative designs are possible (1965:272-273).

From Foa's extension of the formalization of facet theory several ideas emerge which have particular relevance to the problems of dimensionalizing teaching behavior. It is evident from Foa's work that facets contain a fixed number of component elements; that the facet is defined in terms of its component elements; and that all the possible combinations of the facet elements define the domain of content or interest. Facets, then, may be seen as "a set of categories into which phenomena may be placed and for which there is a clear basis for placing each event into one and only one category of the system" (Biddle 1967:347). Hence Biddle cautions that in constructing a coding system the designer should make certain "that any given set of coding categories contributes but a single facet" (1967:347). Biddle simplifies the

idea by stating that "varieties of apples form a facet, but varieties of apples, oranges, and elephants do not" (1967:347). Richard E. Snow indicates, by example, that in regard to test construction "test content" is a facet while "figural," "symbolic," and "semantic" are category or facet elements; "item form" is another facet with "recall" and "recognition" as two facet elements (1968:485). The facets are defined by their elements, and all possible combinations of the facet elements in turn define the larger domain or dimension of inquiry, test construction.

Richard E. Snow. Facet design seems to be, as Biddle, Snow, and Gage have suggested, a productive approach to the construction of a comprehensive, computer-based item pool of teaching behaviors and to the problem of dimensionalizing teacher behavior. Concerning the facet design approach, two problems raised by Snow (1968) are particularly intriguing. The first is that a facet approach to a comprehensive, computer-based item pool aims "not at categories into which observed signs can be classed but rather out of which signs or cue variables can be selected or constructed" (Snow 1968:485). This means in effect that research should shift away from a preoccupation with devising category systems into which behaviors can be classed and toward the generation and collection of those behaviors which, as the component

facet elements, will lead to the definition of the facet or category. This approach leads to an empirical system covering a much wider range of classroom behaviors than in previous studies and is not hampered by vocabulary restrictions.

The second problem raised by Snow is that the vocabulary employed in research on teaching has largely grown out of and been limited to classroom observation use. Snow proposes "the construction of a vocabulary far more extensive than anything a classroom observer could be expected to use" (1968:486) to discover the dimensions of teaching behavior. The construction of a vocabulary and of variables thus may be seen as interconnected and directly related to facet analysis and design.

Foa, too, suggests that language be dealt with in future studies. Foa discovered that "the problem of inventing a satisfactory facet design appears to be closely related to the psychology of concept formation," that language influences category formation, and that perhaps more study should be undertaken on language use in concept formation in order to find those words which could adequately convey the component elements of the facet-concept (1967:273). In the meantime, as Snow concludes, "the construction of variables from a kind of

universal taxonomy of signs to fit various theoretical or practical purposes seems preferable to premature commitment to any particular category system or theoretical vocabulary" (1968:486). It appears that the results of such an undertaking would be both comprehensive and flexible.

Applications of Facet Theory

Research subsequent to the work of Foa contributes to our increasing general understanding of the practical application of facet theory. Although it is not an explicit facet model, the taxonomy produced by M. Karl Openshaw and Frederick R. Cyphert (1966) approximates a facet model in many ways and warrants our attention. In addition William J. Gephart (1969) applies facet analysis to the research process to indicate the tremendous flexibility and predictive power of facet design. Gephart's study is worthy of mention if only because it clearly sets out facet theory and explains its application to a practical problem. Dov Elizur's work (1970) reveals the basic steps to follow in applying facet theory and design to a universe of behavioral elements. And the yet unpublished work of Ehud Bar-On and Aryeh Perlberg (1971) and Bruce W. Tuckman (1970) offers clear insights into the possible application of facet theory

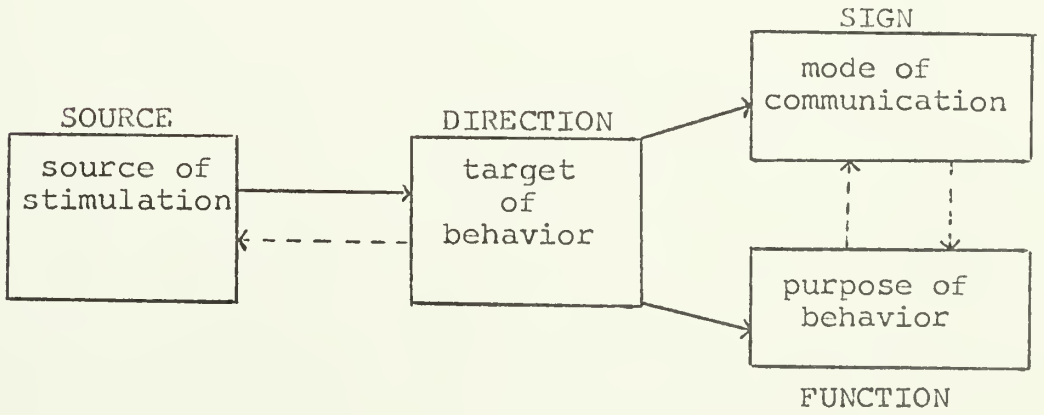
to the world of teaching behavior.

The Openshaw and Cyphert Model. Openshaw and Cyphert's Development of a Taxonomy for the Classification of Teacher Classroom Behavior (1966) attempts to outline a means for describing all observable teacher behaviors. Their work follows in the path laid out by Medley and Mitzel and Biddle and leading toward objective observation and recording of behaviors. The authors tried to keep any conceptions about the nature of teaching and systems of categories for viewing teaching as "value-free" as possible. They avoided using any specific hypotheses or effectiveness constructs; instead they sought from the beginning only to develop a system of categories which would allow "the classification, i.e., the description, of all observable classroom behaviors--good or bad, logical or illogical, directive or integrative" (1966:44). As originally conceived, then, their taxonomy was meant to be "a synthesis of previous approaches to the description and categorization of teacher classroom behavior." In the process, however, Openshaw and Cyphert met with "complete frustration" and settled finally on a "compromise approach" (1966: 149). Although the authors did not consider the facet theories of Guttman and Foa, their compromise approach

approximates a facet model.

Openshaw and Cyphert specify four major dimensions of teaching behavior--source, direction, function, and sign. These are seen as dimensions of teaching which can be observed and quantified and the analysis of which provides the empirical data to explain what a teacher does and how a teacher behaves while teaching (1966:44-45). Figure 1 shows how they schematize the various dimensions.

FIGURE 1.--The Four Dimensions of Teaching Behavior Specified in the Openshaw and Cyphert Model



Notes:
Solid arrows denote controlling relationships while broken arrows signify influential relations not sequentially determined.

Source: Openshaw and Cyphert 1966:47

Openshaw and Cyphert identify two actors in the teaching process: the teacher, or projector entity, and the student, or the receptor entity (1966:45); roles can alternate depending on who is performing and who is perceiving the activity. Intending "to emphasize the concept that a teacher's behavior has meaning to the degree that such behavior is perceived and acted upon by another person," the student, they call the basic component of teacher behavior the "encounter," which they define as "a unit of teacher behavior that serves a discernible function within a teaching situation" (1966:52). They then explain that the four dimensions of teacher behavior can change in sequence--that is, pattern and order--during teacher performance and that each change in dimension indicates a new encounter; the critical dimension is the function dimension, since "each encounter must have a function" (1966:52). Moreover, they state,

> A given encounter is categorized in each of the four dimensions. . . . each encounter may have shifts within the Sign dimensions. Furthermore, a given encounter may be classified in more than one category of the Function dimension. Any change in the Source and Direction dimensions indicates a new encounter (1966:53).

The instrument Openshaw and Cyphert produced contains areas which may be seen as facet elements, thus

indicating how closely theirs approximates a facet model. The instrument outlined in Table 6 shows the facet elements.

TABLE 5.--The Openshaw and Cyphert Model of the Dimensions of Teaching Behavior

I.	Source Dimension	-	Indicates the origin of an encounter
	A. Originate	-	The source of the behavior is undiscernible within the classroom setting
	B. Respond	-	The source of the behavior is some discernible aspect of the classroom setting
II.	Direction Dimension	-	Indicates the target to which the behavior is directed
	A. Individual	-	Behavior focused on one person
	B. Group	-	Behavior focused on more than one person but less than the total class
	C. Class	-	Behavior focused on the whole class
	D. Object	-	Behavior focused on inanimate element in physical environment
III.	Sign Dimension	-	Indicates the mode of communication of an encounter
	A. Speak	-	Behavior characterized by spontaneous speech

TABLE 5--Continued

B. Read	-	Behavior characterized by oral reading of (printed) written matter
C. Gesture	-	Behavior characterized by purposive body movement
D. Perform	-	Behavior characterized by demonstration, nonverbal illustration, singing, etc.
E. Write	-	Behavior characterized by chalkboard presentation, writing on a chart, or overhead projector foil, etc., but excluding drawing
F. Silence	-	Behavior characterized by an absence of other signs
G. Laugh	-	Behavior characterized by inarticulate sound of mirth or derision
IV. Function Dimension	-	Indicates the purpose of the behavior within an encounter
A. Structure	-	Set the context and focus of subsequent subject matter and/or process
1. Initiate	-	Introduce and launch an activity, task, or area of study
2. Order	-	Arrange elements of subject matter and/or process in a systematic manner
3. Assign	-	Designate required activity
B. Develop	-	Elaborate and extend within an established structure
1. Inform	-	State facts, ideas, concepts, etc.

TABLE 5--Continued

2. Explain	-	Show relationship between ideas, objects, principles, etc.
3. Check	-	Request information concerning understanding
4. Elicit	-	Solicit a verbal response that states, facts, ideas, concepts, etc.
5. Test	-	Conduct a written quiz or examination--dictate questions, supply answers, without explanation
6. Reinforce	-	Confirm or sustain an idea, approach, or method through reiteration
7. Summarize	-	Restate principal points in brief form
8. Stimulate	-	Foster student involvement and participation
C. Administer	-	Execute tasks of classroom routine and procedure
1. Manipulate	-	Arrange elements of the classroom environment, personal and physical (cause others to do something)
2. Manage material	-	Provide or coordinate use of media, supplies, or materials
3. Routine	-	Request information regarding compliance with individual, class or school expectations (regulations)
4. Proctor	-	Monitor classroom during group activity, testing, student teacher performance, etc.

TABLE 5--Continued

D. Regulate	-	Establish and maintain interpersonal relations
1. Set standard-	-	Impose or guide development of standards of behavior
2. Support	-	Express confidence, commendation, or empathy
3. Restrict	-	Reprimand, threaten punish, etc.
4. Assist	-	Provide personal help; do for
5. Inquire	-	Ascertain student involvement
6. Monitor-Self-	-	Recognize and interpret teacher's behavior (check own understanding)
E. Evaluate	-	Ascertain the relevance or correctness of subject matter and/or process
1. Appraise	-	Verify by appeal to external evidence or authority
2. Opine	-	Judge on the basis of personal values and belief
3. Stereotype	-	React without stated reference to criteria or person

Source: Openshaw and Cyphert 1966:53-55

The Openshaw and Cyphert model has serious shortcomings. The system is limited in its comprehensiveness, as it restricts the classification of all teacher behavior. Only those behaviors which are "purposeful in

nature" are included, and those behaviors of a personal nature and not directly related to the role of the teacher in a classroom are excluded (Openshaw and Cyphert 1966:46). "The assumption is made that the teacher's purpose in the classroom is to teach something," Openshaw and Cyphert state, and "behaviors categorized are those that fulfill a teaching function" (1966:46). It can be argued, however, that this leads to value judgments in recording behavior and that some behaviors not directly related to the role of the teacher as teacher in a classroom, such as random tapping on the desk or clearing the throat, may have meaning to the overall act of teaching and should therefore be classified. Moreover the model is not broad enough to encompass the entire range of an item pool as extensive as that produced by the University of Massachusetts task analysis project. Thus, existing empirical data suggest additional facets.

Although the Openshaw and Cyphert model takes into consideration the interrelatedness of a teacher's behavior and permits the classification of an encounter in various ways (1966:87), Openshaw and Cyphert make no attempt to create a formal structure which would allow the prediction of behaviors--based on the combinability or separability of facet elements. In other words, without a coding system, the user is unable to obtain related

elements if he does not immediately perceive relationships among the variables.

In brief the system falls short of being a facet model. It depicts exclusive dimensions which appear to be explicit facets, but Openshaw and Cyphert only suggest the kinds of elements the dimensions might encompass. Furthermore the model lacks the formal facet design necessary to predict or produce behaviors based on all the possible combinations of the various facet elements; therefore its capability to generate an exhaustive taxonomy of teaching behaviors is limited. Moreover, the system aims at creating those categories into which observed behaviors, or signs, are classed rather than finding other forms of recall which would allow, as a facet model would, the construction of teaching behaviors or signs. Nevertheless, the Openshaw and Cyphert model is not only the nearest approximation of a facet model but must be considered thoughtfully in the development of any proposed facet model.

Gephart's facet analysis of the research process. William J. Gephart's The Eight General Research Methodologies: A Facet Analysis of the Research Process, although it is not the kind of ambitious study that Openshaw and Cyphert present, demonstrates on a modest scale the predictive power of facet theory and design. Gephart

shows with great clarity how facet theory and design can be used to develop a conceptual universe on a specific problem before the generation of all possible empirical data. Relying on the work of Guttman, as interpreted and explained by Philip Runkel (1965), and with the assistance of Bruce Bartos, Gephart attempts to provide a structure for research methods by which all possible methods of research can be isolated and identified.

Gephart first identifies four general research methods--historical, descriptive, experimental, and quasi-experimental--outlined in Table 6.

TABLE 6.--The Four General Research Methods Defined by William J. Gephart

1. Historical: The determination of truth about events, developments, and conditions of the past. It uses as measurements observations recorded by others to interpret what happened to whom or what. It involves the establishment of the population which experienced a set of events and the delineation of the nature of the experience.

2. Descriptive: The determination of the manner in which a population is distributed on a variable or variables, and/or the degree of association among variables. It uses measures designed to validly and reliably collect the data. It focuses on a specific sample and/or population because of things that may or may not have happened to them.

3. Experimental: The determination of the cause and effect relationship among two or more variables. It involves the administration of specified treatments to a population or a sample of a population and the valid and reliable measure of the effects of the treatment.

TABLE 6.--Continued

4. Quasi-experimental: The estimation of the cause and effect relationship among two or more variables in natural settings. It involves the administration of specified treatments to an unselected group and the valid and reliable measure of the effects of the treatment.

Source: Gephart 1969:5

He extracts three common yet variable aspects of the four definitions: a population or a sample, identified in Table 6 by a broken line; measurement, identified by a solid line; and treatment, identified by a dotted line (1969:6). Thus, for example, the historian must be concerned with the who or what; the descriptive researcher with the boundaries of the population he studies; the experimental researcher with the representativeness of the population sample; and the quasi-experimental researcher with a given population. The historian is interested in the "treatment" experienced by a group or the effects of a treatment on a group, and the descriptive researcher is interested in a common set of experiences (treatment). The historian has to establish the credence of his sources (measurement fidelity); but the descriptive, experimental, and quasi-experimental researchers all select established means of measuring that will develop the required data,

or they develop their own measures to get the required data. From this, Gephart postulates three facets: (1) the representativeness of the units, given the code R; (2) the content of the treatment experienced, given the code T; and (3) measurement fidelity, assigned the code M (1969:6-7).

These variables alternate according to whether or not the researcher can control them. Gephart assigns the subscript 1 if the variable is not under the direct control of the researcher and the subscript 2 if the variable is under control. Thus four research profiles emerge, as seen in Table 7.

TABLE 7.--Four Research Profiles in Gephart's Facet Design

Research method	Measurement fidelity	Representativeness of units	Treatment administration
Historical	M_1	R_1	T_1
Descriptive	M_2	R_2	T_1
Quasi-Experimental	M_2	R_1	T_2
Experimental	M_2	R_2	T_2

Source: Gephart 1969:9

In other words, the historian has no control, as the records he uses were made by others, as evidence of a treatment he never administered, and in terms of a sample he did not select originally. The researcher using descriptive methodology has control over the selection and the measurement of his sample but not over the treatment administered. The experimental researcher has control over all the variables, and the quasi-experimental researcher has control over measurement and treatment but not over the representativeness of his sample population (Gephart 1969:9). The design therefore places the four profiles into a neat scheme: (1) all control, i.e., experimental; (2) all noncontrol, i.e., historical; (3) and (4) mixed, with two facet elements at the control level and one at the noncontrol level, that is, the descriptive and quasi-experimental. In this arrangement it is easy to deduce four additional mathematical possibilities--$M_2R_1T_1$, $M_1R_2T_1$, $M_1R_1T_2$, and $M_1R_2T_2$--making a complete set of eight types, depicted in Table 8.

Applying the Guttman-Foa concept that facets are defined by the facet elements, Gephart then studied the facet elements to determine definitions for the new facets predicted by the facet design. Facets B, C, and D (Table 8) are variations of the concept of the case study; B might represent a research proposal to doctoral students by a professor who leaves only control

over the sources to the students, and facet D might be a particular kind of candid camera study in which the researcher has control only over the reactions of the subject (1969:10).

TABLE 8.--Research Profiles Predicted by Gephart's Facet Analysis

Method	Measurment fidelity	Representativeness of units	Treatment administration
A. Historical	M_1	R_1	T_1
B.	M_2	R_1	T_1
C. Case Study	M_1	R_2	T_1
D.	M_1	R_1	T_2
E. Descriptive	M_2	R_2	T_1
F. Quasi-Experimental	M_2	R_1	T_2
G. Unobtrusive measure experiment	M_1	R_2	T_2
H. Experiment	M_2	R_2	T_2

Source: Gephart 1969:10

Although Gephart appears to understand the predictive power of facet theory and design, he nevertheless fails to grasp or apply fully the facet theories of Foa. In Table 8 above there appears to be no specific order to the facet elements except that the all-noncontrol facet is placed at one end and the all-control facet at the other. If Foa's principle of contiguity were followed, after defining M_1 as the principal component, all other facets sharing the same principal component would go together. But, because he does not follow Foa's system of defining the principal component, Gephart cannot order the types according to the principle of contiguity; and it is not clear what organizing principle he has used, if any.

The validity of Gephart's definitions or ordering principles aside, one can conclude that the significant contribution of his attempt to apply facet theory to research methodology is to show how facet design can predict or generate behaviors before the empirical data is received to support a given hypothesis. His methods approximate those suggested by Guttman and Foa. He designates his problem area and its known elements, giving precise definitions to those elements. He examines the elements for common facets and determines the levels of those facets. He then lists the universe of profiles which exists through the possible combinations of the

facet levels, and finally he determines the relationships among the universe of profiles.

Gephart's work cannot be compared to Openshaw and Cyphert's; his purpose stopped far short of outlining a system with wide ramifications for educational research. Nonetheless he demonstrates a practical application of facet theory and design for the prediction of component facet elements.

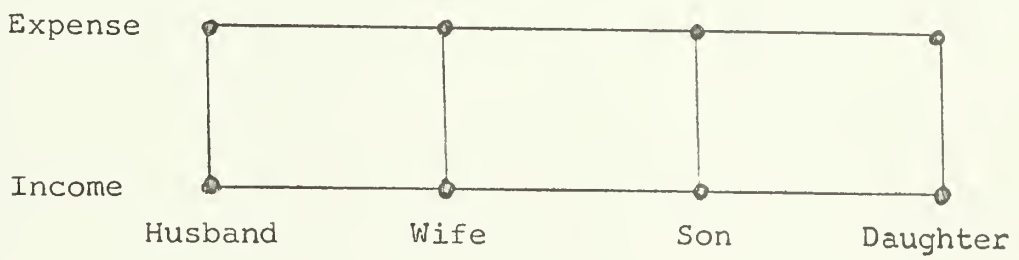
Elizur's facet analysis. Dov Elizur (1970), Louis Guttman's protégé, is the first researcher fully to employ facet theory and design in a major published study. Elizur studied approximately 450 Dutch public employees to determine what behavioral variations resulted from the introduction of computers to various jobs. Although Elizur's work is not in the field of education, it reveals the basic steps in applying facet theory and design to a universe of behavioral content. To find some order relation among the variables seen or to discover the empirical correspondence among the behavioral components in the universe of content, Elizur outlines two steps in facet design: (1) define the basic sets of elements, called facets; and then (2) define new sets of elements which are the Cartesian products of the facets, each element of the new set being a combination

of the facets known as an attribute, a subuniverse, or a variable (1970:45).

The first step, Foa has pointed out, is a substantive and not simply a methodological problem. Applied to the universe of teaching behaviors, this means that each facet, as Biddle suggests, must be mutually exclusive and exhaustive of the domain of teaching behaviors. At this stage we "become aware of the variables which are important in circumscribing the domain which we want to study" (Runkel 1965:3). The distinct advantage of facet theory and design lies in the formalization of the process, the second stage, so that, in testing for structural relations among the variables, accuracy and objectivity are assured (Elizur 1970:46).

By being able to illustrate the structural relations among the variables in the world of content under investigation, a much clearer picture emerges. Elizur offers a simple graph to show the potential of facet theory and design. He takes two facets, A (husband, wife, son, daughter) and B (income, expense), to show how all possible combinations of the elements of the two facets can be presented in a graph, as shown in Figure 2.

FIGURE 2.--Graph Illustrating Combinations of the Elements of Two Facets



Source: Elizur 1970:46

Thus A x B produces the set or Cartesian product illustrated in Table 9.

TABLE 9.--Cartesian Product of Facets A x B

	Husband's income	Husband's expense
A x B =	Wife's income	Wife's expense
	Son's income	Son's expense
	Daughter's income	Daughter's expense

Source: Elizur 1970:46

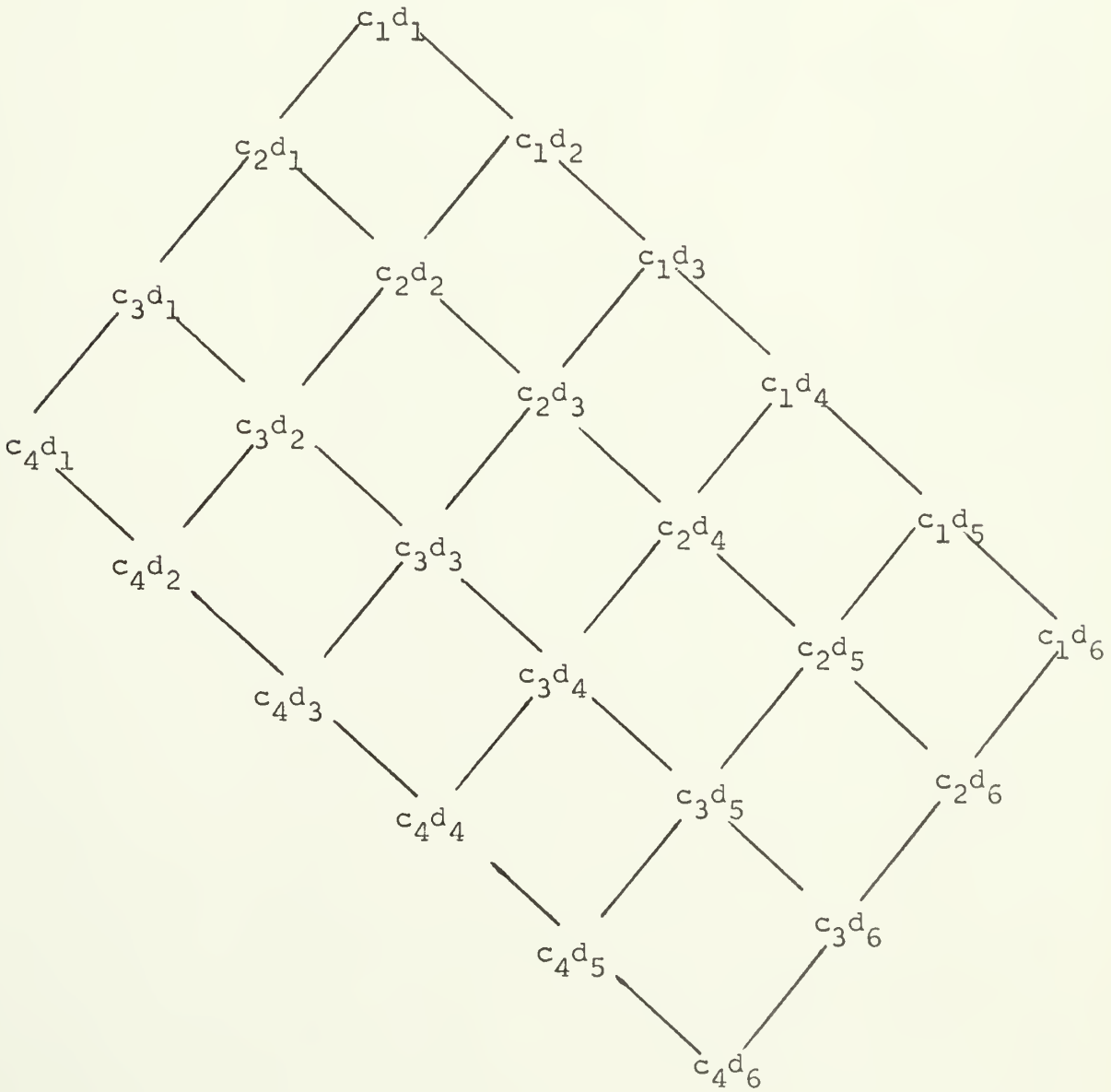
The complexity of the graphs produced is determined by the complexity of the variables or facet elements involved. Any number of facet elements can be created,

although as the number increases it becomes increasingly more difficult to derive hypotheses that may be checked empirically (Bar-On and Perlberg 1971:28). Thus Bar-On and Perlberg illustrate how a structure more complex than Elizur's example is produced. Figure 3 shows the structure resulting from a facet with four elements being combined with a facet having six elements. It also demonstrates the principles of contiguity as explained by Guttman and elaborated by Foa.

Tuckman's Domain-Process-Object Model. Bruce J. Tuckman's model of conceptualizing at least one aspect of teaching behavior shows the possibility of combining three facets or domains of teaching behaviors to produce forty-eight cells (4 x 4 x 3) of varying behaviors in order to explore their functional properties. Tuckman's model is designed "to classify educational objectives into units or clusters for teaching purposes which have more intrinsic comparability than those grouped by subject matter" (1970:2).

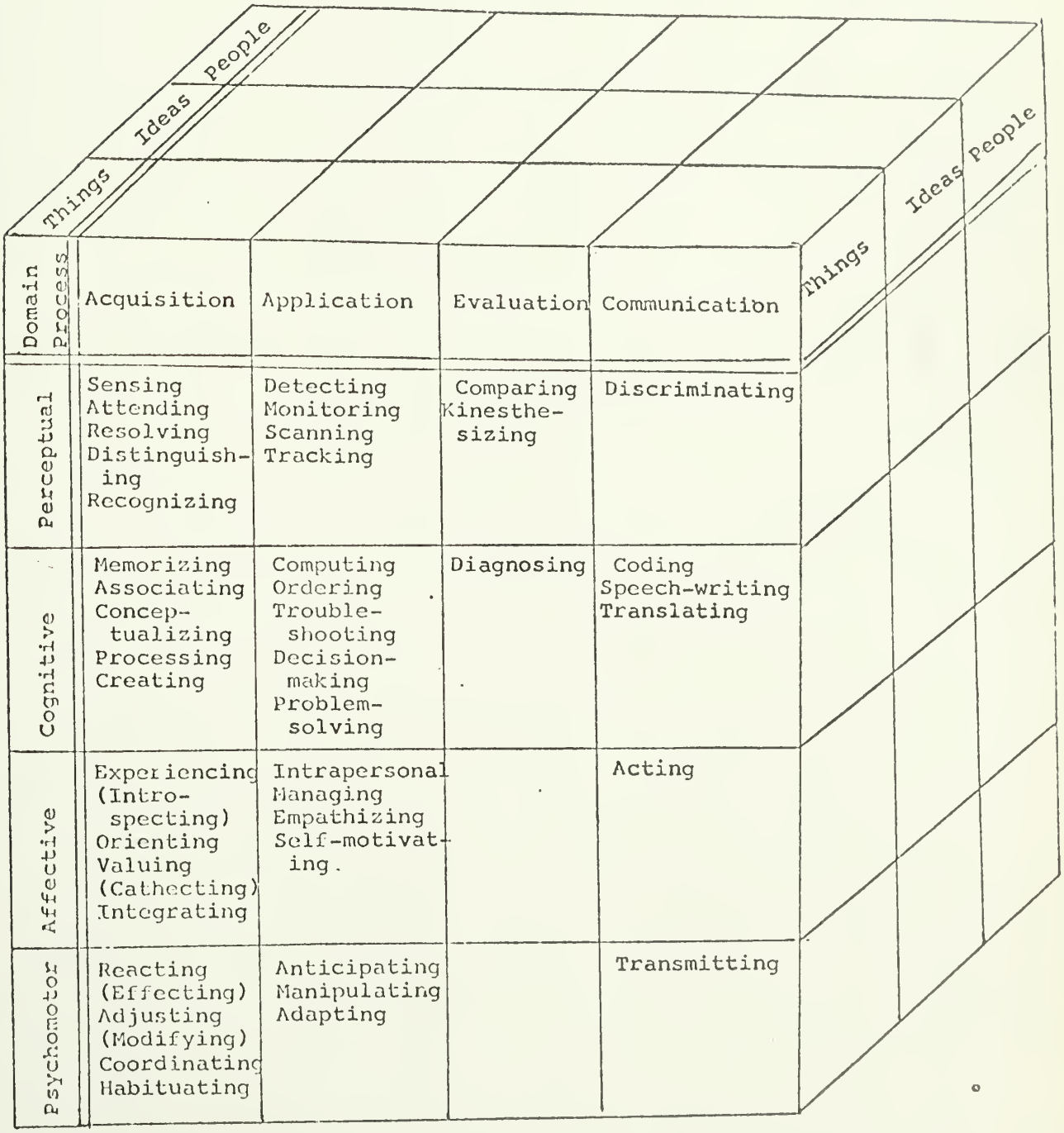
Tuckman's model indicates a direction worth exploring in the use of facet theory and design. Applying facet theory and design to the universe of teaching behaviors should result in empirical structures which will render fairly accurate and objective models of teaching behavior.

FIGURE 3.--Structure Produced by Combining Two Facets with Complex Facet Elements



Source: Bar-On and Perlberg 1971:21

FIGURE 4.--Tuckman's Domain-Process-Object Model for Classifying Behavioral Objectives



Domain / Process	Acquisition	Application	Evaluation	Communication
Perceptual	Sensing Attending Resolving Distinguishing Recognizing	Detecting Monitoring Scanning Tracking	Comparing Kinesthesizing	Discriminating
Cognitive	Memorizing Associating Conceptualizing Processing Creating	Computing Ordering Troubleshooting Decision-making Problem-solving	Diagnosing	Coding Speech-writing Translating
Affective	Experiencing (Introspecting) Orienting Valuing (Cathecting) Integrating	Intrapersonal Managing Empathizing Self-motivating.		Acting
Psychomotor	Reacting (Effecting) Adjusting (Modifying) Coordinating Habituating	Anticipating Manipulating Adapting		Transmitting

Source: Tuckman 1970:3

Summary

A multiplicity of classroom observation systems compounds the problem of analyzing the dimensions of teacher behavior. With the existence of perhaps well over a hundred such systems, a welter of competing, conflicting, overlapping, and often narrowly focused concerns exists in research on teaching. No one has yet devised an inclusive system that will encompass the objectives of all previous observation systems. Very few researchers have even discussed the possibilities of using the computer to create such a comprehensive and flexible system. As a result no one has yet been able to create a comprehensive, computer-based pool of teaching behaviors by which to fractionalize classroom behavior in order to understand the wide dimensions of teaching and by which to provide a coordinated vocabulary for the description of the many-faceted dimensions of teaching behavior.

Furthermore, of those educational researchers who recognize these needs, only a handful are even aware of the immense possibilities of applying facet theory to the problem. Guttman and Foa have offered a theoretical approach of great potential. Snow, for one, has sensed in it a unique power to generate constructed behaviors through the combinability of facet component elements.

Biddle sees a facet model as essential to the clarification of the dimensions of teaching. And Gage recognizes the power of a facet model in analyzing instruction. It seems evident, therefore, that a facet model--concentrating not on theoretical category construction but on those behaviors that, as facet elements, serve to define the categories--would represent a significant advance in the analysis of teaching. This approach would be more empirical than the observation systems of the past, and it would provide a base for the development of a comprehensive system capable of incorporating the multiple concerns and differing organizing viewpoints of previous systems. The following chapter suggests the first steps in how facet theory and design may be applied to and work in a comprehensive item pool of teaching behaviors in order to increase understanding of the dimensions of teaching behavior.

C H A P T E R V

A PROPOSED FACET STRUCTURE FOR THE ANALYSIS OF TEACHING BEHAVIOR

In the previous chapter we explored the various studies by the proponents of facet theory and design. These studies reveal the steps essential to the creation of a facet structure for a universe of teaching behaviors. Briefly, these steps are (1) defining the content to be explored (Guttman 1954; 1970); (2) specifying the facets and ordering the elements comprising each facet, both of which are substantive and not methodological choices (Guttman 1954; Foa 1965; Elizur 1970); and, (3) devising the mathematical testing to discover the ordered structures among the variables (Guttman 1954; Foa 1965). This chapter will show how facet theory and design are applied to create a model facet structure for the dimensionalization of teaching behavior. Creating a facet model is not dependent on the mathematical testing; the facet model is a hypothesis, the validity of which will be discovered in the subsequent stage of testing. Devising and carrying out the mathematical testing of the model is the subject of future research studies, which are discussed in the concluding chapter of this work.

Procedures in Creating the Model Facet Design for a Universe of Teaching Behaviors

In designing the present facet structure, the basic steps in facet theory outlined and elaborated by Guttman, Foa, Runkel, Bar-On and Perlberg, and Elizur have been followed. The creation of a world of content to be explored, the universe of observable teaching behaviors, was discussed in Chapter II. It should be noted, however, that merely having an item pool of 7000-10,000 discrete teaching behaviors poses the problem of manageability. In facet analysis the world of content must be reduced to a language form easily lending itself to a notation system. Thus an index of keywords appearing in the behavioral item pool was generated. Keyword descriptors serve as a kind of shorthand to reduce the items of behavior to readily comprehensible facet elements. Keywords also provide an extensive vocabulary based on the language of teachers and educational personnel generally, and not simply derived from past research or classroom observation use (Foa 1967; Snow 1968).

As an additional step in the development of the keyword index, a frequency count was taken on each facet element, or keyword, to indicate its frequency of appearance in the behavioral pool. The frequency of a keyword indicates the relative significance of the behavior in

an analysis of the universe of teaching behavior. The keyword index, seen in Appendix C, forms the world of content in our model facet structure.

Subsequently this world of content was analyzed for similarity patterns revealing facet elements. For example, appraises, opines, assesses, diagnoses, evaluates, and judges seem to share common behavioral territory, to which we might attach the general descriptive label evaluation. Another larger cluster appears to include: elaborates, defines, informs, states, explains, emphasizes, generalizes, checks, elicits, tests, reinforces, summarizes, stimulates, clarifies, describes, illustrates, interprets, relates, and reviews. This cluster apparently defines a facet element which closely approximates what Openshaw and Cyphert have labeled "development" (1966:53-55).

Various clusters emerge as we explore the keyword index. Helps, involves, motivates, prescribes, suggests, and stimulates seem to share the area we might describe as "motivation." Frequently negative behavior terms are found, such as admonishes, accuses, avoids, criticizes, denigrates, depreciates, disagrees, disapproves, ignores, reproves. These share the properties of being negative response behaviors. Their opposites from the positive response cluster include approves, affirms, assists,

assures, empathizes, encourages, guides, praises, rewards, supports, and reassures. Table 10 shows various clusters of descriptors which emerged from a preliminary analysis of the item pool of teaching behaviors.

TABLE 10.--Sample Clustering of Descriptors of Teaching Behaviors

appraises opines assesses diagnoses evaluates judges	= evaluation	helps involves motivates prescribes suggests stimulates	= motivation
admonishes accuses avoids criticizes denigrates depreciates disagrees disapproves ignores reproves	= negative response	approves affirms assists assures empathizes encourages guides praises rewards supports reassures	= positive response
plans/prepares analyzes researches initiates presents introduces orients acquaints assigns	= structure	lectures planned repetition tutoring discussing using	= application

TABLE 10.--Continued

elaborates		coordinates	
defines		directs	
informs		leads	
states		manages	
explains		orders	= managerial skills
emphasizes		organizes	
generalizes		records	
checks		schedules	
elicits		supervises	
tests	= development		
reinforces			
summarizes			
stimulates			
clarifies			
describes			
illustrates			
interprets			
relates			
reviews			

Once the clusters are discerned and labeled, they are in turn analyzed for similarity patterns. At this stage, facets are hypothesized, and facet elements are specified and ordered. The facets are given descriptive designations based on their component elements; it becomes important to define them as clearly as possible in order to avoid having facet elements overlap. The ultimate objective is to create mutually exclusive dimensions or facets, within which the elements will be exhaustive of the domain of teaching behavior. Assuring that the

categories are exhaustive of the domain and mutually exclusive should not be over-emphasized, however, as Bar-On and Perlberg have found that this requirement is "generally useful, but is not essential for facet theory" (1971: 14). Table 11, showing the facet Functions, demonstrates how clusters of facet elements have been analyzed, to be grouped in and to define a separate facet or dimension of teaching behavior; a list of facets thus far developed appears in Appendix D.

TABLE 11.--The Facet Functions

H. FUNCTIONS

h_1 Structure

plans/prepares
analyzes
researches

acquaints
begins
initiates
introduces
orients
presents

assigns

h_2 Development

defines
informs
relates
states
describes

TABLE 11.--Continued

explains
elaborates
illustrates
emphasizes
generalizes
interprets
clarifies
reinforces
summarizes
stimulates
elicits
checks
reviews
tests

h_3 Evaluation

appraises
assesses
diagnoses
evaluates
opines
judges
tests
grades
scores

A standard notation system has been followed, as seen in Table 11. A capital letter signifies the facet or dimension. Small letters are used for the facet elements and subscripts for ordering within the facet. This constitutes an advance over the Openshaw and Cyphert model (Table 5) discussed in Chapter IV, which does not attempt to facetize in any formal way the various dimen-

sions of teaching behavior investigated. Without a formal facet design, the model cannot be tested systematically for validity.

It is evident from the facets in Appendix D that a facet of teaching behavior consists of several facet elements. Each facet element represents a subuniverse of behaviors. And all the elements are grouped to reflect a universal dimension of teaching behavior. In the past, categories were frequently devised out of simple elements of teaching behavior--for example, praises, initiates, positive response, nonverbal cues--with no attempt systematically and empirically to bring behaviors together in order to analyze the larger dimensions of teaching behavior. Thus, some categories previously used by educational researchers have not remained inviolate but have been subsumed, because of the nature of their component elements, into facets.

Analysis of the Facets in the Proposed Model

The eleven facets which appear in Appendix D exhibit a fairly wide but tightly defined spectrum of teaching behaviors. The range extends from the Actor (Facet A), or professional positions teachers assume, and the various Roles teachers perform (Facet B) as

actors, to the behaviors performed by a teacher interacting with students in various teaching Processes (Facet K). The facets and facet elements were analyzed for similarity patterns and order and were subsequently compared to descriptive labels as defined and used by educational researchers. An attempt has been made to isolate the facets logically and semantically so that they are mutually exclusive and represent only one dimension of teaching behavior.

The first six facets are relatively unambiguous. The facet Actor (Facet A) is as yet undeveloped but potentially includes what is currently thought of as a "position"--i.e., a master teacher, staff teacher, student teacher, instructional aide, among others; this coincides with the line of positions in the situation-by-position matrix (Appendix A) originally used to help generate teaching behaviors for the behavioral item pool, discussed in Chapter II. Roles (Facet B) are considered to be "the relatively stable patterns of behavior exhibited by teachers of various classroom situations" (Biddle 1967:346-47) that do not include general teaching behaviors. Roles are performed within the full context of an actor's area of activity. Hence the roles included are those of the classroom manager, the monitor, the discipliner, and the counselor.

The Target Group (Facet C) is what Openshaw and Cyphert have called the "direction dimension," indicating "the target to which the behavior is directed" (1966:53-55). This facet includes large and small classroom groups, the individual student, other teachers, the students' parents, or the community.

The following three facets, Setting (Facet D, Areas of Knowledge (Facet E) and Levels (Facet F), are currently being explored in a project to develop teacher training protocol materials by the State of Florida Department of Education (Kincaid 1971). Setting simply indicates the context in which the behavior occurs--the classroom, school, peer group, family, or community. Eventually, as the facet is further investigated, setting might include various units of analysis such as the episode (Smith and others 1964), the segment (Gump 1967), or, on a more sophisticated level, the arbitrary time units suggested by Flanders (1960) and Medley and Mitzel (1963).

Areas of Knowledge (Facet E) refers to classes of arts and sciences such as "symbolics," "arts," and "biological sciences" (Kincaid 1971:73-75). As the facet structure is revised and expanded, it may have the capability of delineating subfacets of individual subjects.

Levels (Facet F) exhibits the stages of a student's general development. This facet includes early childhood, middle childhood, preadolescence, adolescence, and adult levels (Kincaid 1971:73-75). The present model differentiates various levels of complexity of materials and presentation.

The seventh facet is Activities (Facet G). Biddle suggests that activities are similar to teaching methods and somehow include a wide range of classroom behaviors such as large group instruction and lectures (1967:352). It was found in a preliminary analysis of the facet design, however, that Biddle's conception of "activities" was too broad and allowed for overlap among facet components. Thus in this model the facet designation Activities more nearly approximates the term "activity" as employed by the Stanford Research Institute (1970). This facet includes behaviors related to language development, material resources, arts and crafts, and recreation. Administration related to a teacher's involvement in school governance activities has been included in this facet and is distinguished from the administration component of Facet B (Roles), as the latter relates to classroom routine administration chores. But in the future these two "administration" elements may be more closely analyzed for similarity, either to show a connecting link between Facets B (Roles), D (Setting),

and G (Activities) or eventually to incorporate them in one or another of the facets.

Because of their complexity, the last four facets lend themselves to a fuller discussion in this chapter. Functions, Modes of Communication, Manners, and Processes are more tightly defined than the rest of the facets and show significant interrelationships among facet elements.

Functions (Facet H), seen in Table 11, emerges from the Openshaw and Cyphert model (Table 5) with slight modifications. The three basic facet elements derived from the empirical base in the proposed model are structure, development, and evaluation. Paul V. Gump (1967) has hypothesized three similar elements--preparations, consummations, and evaluations. These three elements appear to define best the facet Functions. But Openshaw and Cyphert (1966:53-55) include under Functions two additional facet elements, administer and regulate. In the present model these have become elements of other facets. The subelements of administer are manipulate, manage material, routine, and proctor, all of which have been incorporated into managerial skills, administrator, and monitor--elements of Facet B (Roles). Likewise, subelements of regulate are sets standards, supports, restricts, assists, and inquires; sets standards is included in classroom manager as a part of Facet B (Roles), supports

and assists help to define the positive response cluster, and restricts is subsumed by the negative response cluster of Facet J (Manners). Neither the administer nor the regulate elements of the Openshaw and Cyphert model contributes to defining functions as a distinct dimension exclusive of behaviors which overlap or pertain more directly to other facets.

Modes of Communication (Facet I) is seen in Table 12. This facet attempts to adhere to those areas which Biddle has called "doing," "information exchange," and "intellectualization" (1967:353). The facet elements are: application, which includes teaching methods such as lecturing, planned repetition, tutoring, and discussing, and communication, which includes both verbal and nonverbal responses and cues.

TABLE 12.--The Facet Modes of Communication

I.	MODES OF COMMUNICATION
i_1	Application
	lecturing planned repetition tutoring discussing using (teaching machines, etc.)
i_2	Verbal communication
i_3	Nonverbal communication

Distinct from Activities (Facet G), Modes of Communication (Facet I), and Processes (Facet K), is Manners (Facet J), as shown in Table 13.

TABLE 13.--The Facet Manners

J. Manners

j_1 Positive Response

affirms
approves
assists
assures
empathizes
encourages
guides
praises
rewards
supports
reassures

j_2 Negative Response

accuses
admonishes
avoids
criticizes
denigrates
depreciates
disagrees
disapproves
ignores
reproves

j_3 Nonauthoritarian

j_4 Authoritarian

Biddle suggests that "manners" is the way a teacher's behavior is conducted (1967:347). In the present model,

Manners appears to be defined by a teacher's positive and negative response behaviors and by authoritarian or nonauthoritarian behaviors. Future analysis may focus on comparing the component elements of Manners to the element "communication" in Facet I (Modes of Communication) and to Facet K (Processes).

Table 14 shows Processes (Facet K). This facet is similar to Manners (Facet J). It should be noted that Manners (Facet J) incorporates behaviors directed by the teacher to the student in a positive or negative, authoritarian or nonauthoritarian way, regardless of student reaction or resultant behavior. Processes (Facet K), however, are those behaviors which imply "actual face to face interaction in the classroom" (Bjerstedt 1967:345). The emphasis in on observable interaction. Thus Processes is also distinguished from the development and evaluation behavioral elements defining Functions (Facet H), which are one-directional rather than interacting behaviors.

TABLE 14.--The Facet Processes

K.	Processes	
	k_1	Motivation
		helps
		involves

TABLE 14.--Continued

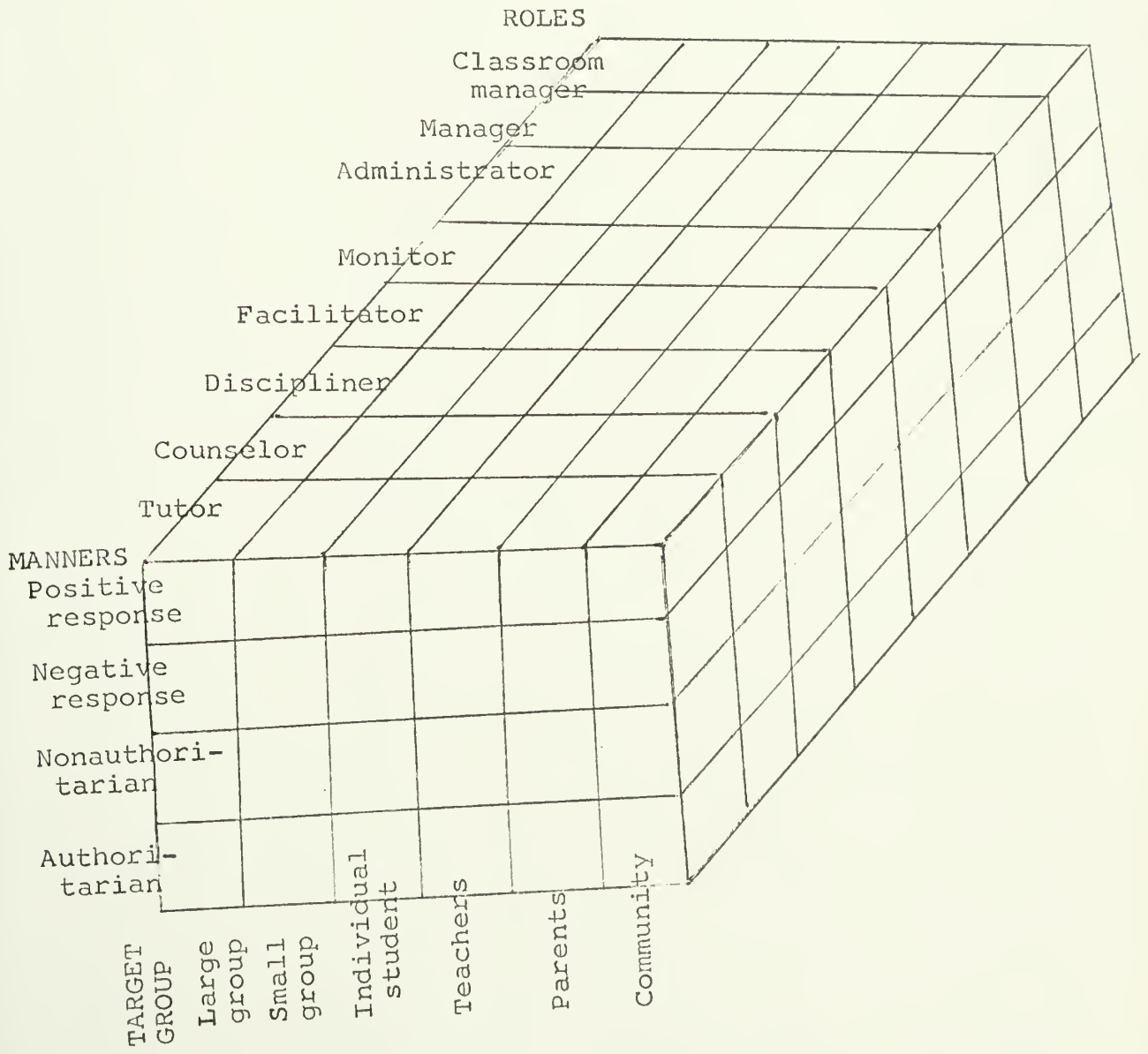
	motivates
	prescribes
	suggests
	stimulates
k_2	Interaction
	questions
	answers
	participates
	relates
	listens
	suggests

Summary

The present proposed facet structure (Appendix D) allows us to make empirically based graphic representations and comparisons of the various dimensions of teaching behavior. The structures depend upon the number of facets employed. Any number of facets can be used (Bar-On and Perlberg 1971:28); therefore structures may range from simple to highly complex. Because they are empirically based, the structures should reflect fairly objective views of reality and serve as starting points in our analysis of the variables in and thereby the larger dimensions of teaching behavior. We may visualize, for example, the Cartesian product of BCJ

(Roles, Target Group, and Manners), as Figure 5 illustrates.

FIGURE 5.--A Graphic Representation of the Cartesian Product of Facets B (Roles), C (Target Group), and J (Manners) from the Proposed Model Facet Structure



The Cartesian product represented in Figure 5 is only one example of the innumerable combinations possible for depicting and comparing segments of the domain of teaching behavior. Foa's work suggests that all possible combinations of the facet elements will not only help to define the domain of content or interest but will allow us to analyze each combination as a separate entity or sequence of behaviors. These possible combinations will be analytic units which, as Biddle has indicated, will reflect both the complexity of classroom behavior and an analytic common concept vocabulary with which to describe those complex behavioral processes (1967:344). Fully computerized, this model will be able to generate any number of complex sequences of behaviors.

The limitations of space prevent the inclusion of a list of teaching behaviors generated from the existing item pool of behaviors according to facets; a facet element alone may contain 1000 or more behavioral items. It should be remembered in this context that the exhaustiveness of elements or categories is not an essential requirement of facet theory and design (Bar-On and Perlberg 1971:14). Facet analysis, as Foa has pointed out, simply permits "a test whether a particular facet design produces similarity patterns which are confirmed by

empirical results" (1965:264). The purpose of this study is to propose a model facet structure for a universe of teaching behaviors. The empirical testing of the present model may serve as the basis for a future study.

C H A P T E R VI

PROBLEMS AND PROSPECTS

Several problems are evident in the present proposed facet structure for the dimensionalization of teaching behavior. This chapter will explore some of the questions related to the behavioral item pool, the coding of the items, the facet designations, language use, and the future testing of the facet model. It is hoped that recognizing and discussing a few of the problems will serve to clarify the prospects for extending research on the facet system.

Continued analysis of the existing behavioral item pool and the coding of the behavioral items to fit a facet structure is in itself the basis for future studies. This research problem is central to the computerization of the facet structure. Behaviors associated with each facet element must be carefully analyzed to assure that they relate directly to that facet element and do not overlap other facets. A computer coding system must be developed to guarantee the retrieval of behavioral items in a sophisticated way, so that items within one facet element will be coded according to their association in other facets. For example, behaviors such as "T plans content objective to show cause-effect relationships" and "T plans introductory lesson for unit" from the facet

element structure in Facet H (Functions) must be coded to be associated with the facet element staff teacher in Facet A (Actor). Behaviors such as "types lesson plans" and "plans field trips for S," also from the facet element structure in Facet H (Functions), must be coded to be associated with the facet element instructional aide in Facet A (Actor). In other words, although the keyword index is a reliable way of discovering facet elements to define a facet structure, as discussed in Chapter V, it cannot be relied upon as the chief means for retrieving behavioral items to fill in the facet structure. It must be used with the facet structure devised as an approach to component parts of teaching behavior which can then be further analyzed and coded to make the subuniverses of the facet elements as discrete as possible.

The facets, too, must be further analyzed to make sure that the facet elements are complete. Facet A (Actor) includes component elements related to differentiated staffing positions. These positions are in a state of flux with new ones very likely to be added as the differentiated staffing model gains wider acceptance. Facets C (Target Group) and D (Setting) should be studied for additional elements perceived in the teaching-learning environment. Facet E (Areas of Knowledge) is at present intended to have elements typifying general classes of arts and sciences. This facet might be ex-

plored to find ways to incorporate either facet elements or subfacets of elements to delineate individual subject areas; it is recognized, however, that this would create an extremely large facet. Facets H (Functions), I (Modes of Communication), J (Manners), and K (Processes) should be compared and analyzed to establish mutual-exclusiveness and to discover shared behavioral areas. This is a significant step in the definition of the dimensions of teaching behavior.

Furthermore the testing of the model facet structure might serve as the basis for a future research study. The facets should be tested for validity. This will show the areas in the model which need to be revised, facet elements which need to be developed, and facet elements which ought to form separate facets. For example, methods, presently an element of Facet I (Modes of Communication), may in fact be a facet with its own facet elements. At the moment it appears to be better classed as a mode of communication, but testing the structure--for conceptual or mathematical patterns--will show whether or not this is the case. This example indicates why testing and further work on the proposed facet structure must continue in the future.

Testing is also relevant to the expansion of the facet structure. The predictive power of facet theory

and design was discussed in Chapter IV. Once a facet structure is formed, testing will bring various facets together, and in some instances it will be easily seen that the combination of certain facet elements in fact defines entirely new facets. This capability of a facet structure to suggest totally new facets is extremely significant in the exploration of the dimensions of teaching behavior. It is, however, dependent upon formal testing.

In any future analysis and testing of the facet model, the possibility of designing a formal system for the subuniverses of the facet elements should be considered. This is a wholly new area of research and one which may have great potential for the dimensionalization of teaching behavior. The study of information science may yield interesting results to be applied to the computerization of the facet model (Fairthorne 1961; Becher and Hayes 1963; Howerton 1963; Jonker 1964). During the research on the present study, individuals suggested that the facet organization of the behavioral item pool was comparable to the Dewey Decimal System or to similar systems. While there are some general similarities, particularly in the ordering of the elements of each facet, it should be remembered that facet analysis is basically a formalized system that can be tested and can produce predictable mathematical or conceptual structures;

it is not merely a categorization or storage-retrieval system. Nevertheless information science may have relevance to the designation of facet elements in a facet structure.

More attention in the future must be given to the use of language in the facet structure. The terms presently used have been suggested mostly by the keywords from the item pool of teaching behaviors, which is composed of items of behavior largely derived from the language of teachers and educational personnel. The item pool, employing the language of many sources, offers a more empirical base than any previously used from which to draw key facet-concept words. The suggestions of Foa (1965) and Snow (1968) to use a far more extensive language than that which had grown out of classroom observation use have therefore been followed. However, because language does influence category formation (Foa 1965:273), further analysis of the language in the facet structure should be conducted to refine and revise the vocabulary to obtain the clearest terms for the component elements of the facets. This will help to eliminate conceptual overlap among variables, to make the facets mutually exclusive, and eventually to construct an empirical vocabulary based on the facets themselves.

A fully functional facet system is still in the future. At least four more steps, indicated above, must

be taken--an analysis and coding of the behavioral item pool, a full-scale testing of the present proposed facet structure, a revision of the system based on the results of the testing, and further work on the formalization of the subuniverses of the facet structure. But the present facet model represents a beginning.

Continuing work on a facet system for the analysis of teaching behavior is highly important. Its benefits are manifold. First, a facet system can help us to describe the full range of teaching behaviors, and, by combining and comparing facets and facet elements, to approach areas of teacher behavior previously unseen. A facet system can easily cluster behaviors into relevant units for analyzing, integrating, or fractionalizing teacher behavior, to demonstrate relationships among behavioral variables and to serve as the basis for teacher training and preparation in various guises. In this sense a facet system has immediate significance in the educational development of both teachers and students. In sum, a facet system warrants our continuing attention; it is a means empirically to create and describe the dimensions of teaching behavior, and thus a contribution toward the formation of the domains of teaching and of a common vocabulary which will advance the science of teaching.

APPENDIX A

SITUATION-BY-POSITION MATRIX

POSITION / SITUATION	(read down)
	MSSALIESRRTTTIDACCACMGSCLTSCCVPSPVSSIS AETSENXTEEEEENEDUODOEREAIEELOOATRIUUNC SNASCTTUSSAAASPMRUVNDARIBCCEMLRUICPPSH TIFOTEEDOEMMCTTIRNISIPV RHRRMUEDNEEETO EOFCURREUA HR NISSUAHI ANEIUNNEC RRRO RR IRNNNRRLTIUHICEOL IC RITCNTTNIPIVUL TAE TCCEENCESULRTSCE ICAAIE TPRNIC TTETR EHAAGTATLO AP AIRLTE AITSTB EEAE T DC IDRUR NESA NAY YR LNEOOO AAC ETTEHAO AM TCPI N A CNRRA CCHT AEERESN T IED IR ID R HHEE CAA RSA OD ACE DE PE D EERA HCC IL RE LI ES AN RR C EHH S V IA O LT H REE TA E SL U E RR AI L TI R R ND O S C TE P T E E R
CLASSROOM MANAGEMENT LARGE GROUP INSTRUCTION SMALL GROUP INSTRUCTION LECTURE TUTORING INDEPENDENT STUDY PLANNING & PREPARATION STUDENT DIAGNOSIS STUDENT REMEDIATION COUNSELING EXTRA CURRICU & CLUBS PARENT CONFERENCES TEACHING TEACHERS DEPT & COMMITTEE MEETS SCHOOL GOVERNANCE RESEARCH CURRICULAR INNOVATION CONTINUED EDUCATION COMMUNITY RELATIONS PROFESSIONAL SERVICE MATERIAL RESOURCES REVIEW PRESENTATION STUDENT PRESENTATION	

APPENDIX B

QUESTIONNAIRES FOR OBTAINING TEACHING PROTOCOLS

with sample responses

JOB ANALYSIS QUESTIONNAIRE

Instructions

This questionnaire is designed to give us information about the different tasks educational personnel perform. It is a unique job which we are trying to do, to carefully specify the functions performed in various situations. You are the people who will give us the raw material for us to do this kind of job analysis. Your responses will be kept anonymous and will not be used for comparisons or evaluation of any kind.

We will specify the title of a position, perhaps define it for you, and give you a situation which you might find yourself working in. We will then ask you to describe what you would do in that situation.

If we ask you to describe what you do as a small group discussion leader, working with about 10 students, we would like you to first give us a written running account of how you conduct an instructional meeting.

Example:

> I prepared for the meeting by listing some important questions to discuss. When I entered class, I asked for questions from the students about the material. I answered a few questions and referred some questions back to the students, for them to dig out the answers for us. When the questions about the material were over, I asked the first of my discussion questions, etc...

This running account we will call the global description of your teaching. When we ask you to write up this account, please give us a complete and detailed account of how you might perform this particular job.

After you write up your description, we will ask you to look at each sentence, which was purposely global in your descriptions, and extract the key sub-tasks of that description. This will give us the

detailed information we need for our analysis, and is done in the following way.

Sentence 1 of the global description was "I prepared for the meeting by listing some important questions to discuss." A breakdown of this single global description might include:

I read the material assigned;

I looked for questions to ask that were specific to the content;

I looked for questions to ask that had wide-ranging consequences;

I write down the most important questions;

I sketched out the answers to the questions;

I noted some examples to illustrate important points;

I picked some references to refer students to;

I listed students who I might want to ask certain questions;

Etc.

You can see that a single global statement allows for an almost endless enumeration of sub-tasks, which more completely define the task. Each teacher, of course, would probably describe a different set of sub-tasks, while most might include the global description "prepare for class."

Since the breakdown of sub-tasks can be quite extensive, use some judgment about what is important. List those sub-tasks that to you are very important. If at all in doubt, include the statement of the sub-task.

<u>We need as detailed a description of the important sub-tasks as you can provide us</u>.

Thank you.

In the space below, please give us an extensive global description of what you do in performing the role of Master Teacher.

Now please go back to your global description and number the sentences. Begin below to break down the global descriptions into important sub-tasks. Start with Sentence #1 and continue until you have completed analyzing your description.

1._____

_____

In the space below, please give us an extensive global description of what you do in performing the role of Staff Teacher.

Now please go back to your global description and number the sentences. Begin below to break down the global description into important sub-tasks. Start with Sentence #1 and continue until you have completed analyzing your description.

1._____

_____

In the space below, please give us an extensive global description of what you do in performing the role of Team Leader in a team teaching situation.

Now please go back to your global description and number the sentences. Begin below to break down the global descriptions into important sub-tasks. Start with Sentence #1 and continue until you have completed analyzing your description.

1._____

_____

In the space below, please give us an extensive global description of what you do if you are performing as a supervisory teacher (a teacher with the responsibilities for training one or more interns, student teachers, teacher aides, etc.) when teaching a class of about 25 students.

Now please go back to your global description and number the sentences. Begin below to break down the global descriptions into important sub-tasks. Start with Sentence #1 and continue until you have completed analyzing your description.

1._____

_____

4. Please give us an extensive global description of what you would do when you were performing as a curricular developer developing a curricular unit package or program for the kind of instruction you associate with teaching a class of 25 students.

1. Identify the learner for whom the instructional package is being designed.
2. List instructional objectives which students are intended to meet upon completion of the package.
3. Survey available instructional materials which relate to the topic and select those which are appropriate.
4. Assess available facilities to be utilized during the period of instruction.
5. Assess available human resources and schedule personnel in an appropriate way.
6. Design instructional activities which will assist students in developing the necessary skills to meet the stated objectives.
7. Design pre and post test instruments.

Now please go back to your global description and number the sentences. Begin below to break down the global descriptions into important subtasks. Start with Sentence #1 and continue until you have completed analyzing your description.

1. a. Examine achievement test data.

   b. Review student performance rating given by previous teachers.

   c. Intefview students personally.

   d. Assess student performance on previous instructional units.

2. a. Develop broad goals.

   b. State general terminal objectives.

   c. Develop enabling objectives.

   d. Determine an acceptable performance level for each objective.

   e. List means by which student performance will be measured.

   f. Submit goals and objectives to other team members for reality testing.

3. a. View available filmstrips and select those which are appropriate.

   b. Listen to tapes and select those which are appropriate.

   c. Review programmed materials and select those which are appropriate.

   d. Review textbooks and select appropriate pages or chapters.

   e. Review other instructional packages or unpublished materials and select those which are appropriate.

   f. Examine commercially prepared or teacher developed aids such as geometric models, number lines, measuring devices, computer programs, etc.

   g. Review and select any other available materials such as film loops, 16mm films, transparencins, etc.

4. a. Determine availability of media center for independent study activities.

   b. Utilize available space in resource center for viewing, listening and performing lab activities.

   c. Determine whether classroom facilities needed will be available.

5. a. Develop teaching assignments appropriate to individual teacher strengths and interests.

   b. Utilize instructional assistants to supervise independent study activities and distribute appropriate materials.

   c. Schedule other staff members or citizens to provide instruction related to their particular talents or interests.

   d. Provide for availability of personnel to provide tutorial assistance when needed by students.

6. a. Write necessary programmed instruction.

   b. Write worksheets.

   c. Write discovery activities.

   d. Write activity sheets to accompany filmstrips, tapes and other such materials.

   e. Write activities to utilize manipulative materials.

   f. Write appropriate textbook assignments.

   g. Prepare a teacher guide sheet which relates learning activities to specific objectives.

   h. Prepare self tests for student use.

   i. Develop plans and materials for classroom presentations and activities.

   j. Develop instruments to monitor student progress in the instructional unit.

7. a. Design test questions to measure student performance as it relates to the stated objectives.

b. Develop rough draft of test.

c. Obtain recommendations for revisions from teachers who will utilize the tests.

d. Develop final draft of tests.

e. Develop scoring techniques and minimum levels for acceptable performance.

f. Prescribe recycling activities for students who did not pass the post test.

3. In the space below please give us an extensive global description of what you do if you are performing as a teacher aide/intern (paraprofessional) when teaching in a class of about 25 students.

After discussing the class level and objectives with the master teacher, I developed my own set of objectives for the class. I prepare for the class lesson through a block of the unit with no. of lessons per unit, etc. With a class of 25, I organize the class structure for the lesson & activity and convey the beginning materials to the students in an organized fashion whole-part-whole. This is done thru lecture, demonstration and question-answer discussion. There is a period of time when the students have a chance to put into practical application the concepts just discussed. (Also a lab experience) The lesson is concluded with a review discussion, questions to be answered by the students, individual help for difficulties.

The lesson is followed by an evaluation with master teacher regarding effectiveness of techniques and meeting of objectives.

Now please go back to your global description and number the sentences. Begin below to break down the global descriptions into important subtasks. Start with Sentence #1 and continue until you have completed analyzing your description.

1. Discuss with Master Teacher

Establish objectives of unit (e.g. basketball)
-knowledge of game
-skills & their uses
-strategy of game

Add my own object. -- safety rules
- class behavior & organization

Prepare for lesson -- unit: no./lessons
- lesson: material to be covered
- how to arrange students
- lectures to cover

Actual work with class --convey concepts
~~whole-part-whole lecture~~
-demonstration
-pointed questions to student and answers
-students go to area to put into action new concepts (game situation or skill drills)

Review - questions
- individual help to those who need it
- preview of next meeting

2. Evaluate with Master Teacher

-- what worked?

-- what didn't?

-- how to better organize

-- did I meet ind. & class objectives?

-- was class really responsible?

-- was method as effective

-- how could I improve lesson content & method for future use?

5. Please give us an extensive global description of what you would do as a guidance counselor in providing guidance and counseling for a class of 25 students.

I would ask each student to briefly list his major concerns related to his particular area of interest-- after each student has listed his specific area I would attempt to outline those in areas of interest such as personality, class assignment, occupational goals, health concerns, life time ambitions, grades, problems in the home, in the school, with teachers, with parents, grades, personal problems in general -- I would set a time for each student to briefly meet with me and go over the goals and problems he had listed. I would attempt to review all the data that the student has listed about himself and also the permanent records, cumulative, health records, test scores, past performance, etc. I would meet with each student attempting to follow through his courses that are preventing him from success in his academic studies-- meet with his teachers, parents -- meet in small groups of specific interests.

Now please go back to your global description and number the sentences. Begin below to break down the global descriptions into important sub-tasks. Start with Sentence #1 and continue until you have completed analyzing your description.

1. --List all areas of concern

outline these and attempt to group them
students may later meet as a group

-- personality
occupations

health
ambitions

grades

parents

teachers
subjects

personal problems

2. Meet with each student individually

discuss all aspects

what he wants to talk about

review with him all data

3. Review all test data

scores
grades

past performance

teacher comments

samples of work

specific problems

4. Conference

parents
teachers, etc.

APPENDIX C

KEYWORD-IN-CONTEXT INDEX OF A BEHAVIORAL ITEM POOL

1	(ROMANCES | 3 |)	14	+	3	-	6	--
1	-UM	1	-UM-	1	-WE-	1	,	2	(
1	(BLUNTED	1	(CALL	2	(I)	1	(LIGHT	1	(TA)
1	(4	187	A	1	A-HAH	121	A-V	11	ABILITIES
29	ABILITY	3	ABLE	121	ABOUT	10	ABREAST	11	ABSENCE
3	ABSENT	1	ABSENTEE	6	ABSENTEES	4	ABSTRACT	1	ABSTRACTIONS
1	ABSTRACTLY	1	ABUSE	30	ACADEMIC	3	ACADEMICALLY	3	ACCELERATED
5	ACCEPT	5	ACCEPTABLE	2	ACCEPTANCE	4	ACCEPTED	3	ACCEPTING
29	ACCEPTS	1	ACCESS	1	ACCESSIBILITY	2	ACCESSORY	4	ACCIDENT
1	ACCOMPANIED	10	ACCOMPANIES	1	ACCOMPANY	1	ACCOMPLISHED	1	ACCOMPLISHES
8	ACCOMPLISHMENT	2	ACCOMPLISHMENTS	36	ACCORDING	2	ACCOUNT	1	ACCOUNTABILITY
8	ACCOUNTING	1	ACCURACIES	2	ACCURACY	5	ACCURATE	1	ACCURATELY
1	ACCUSES	9	ACHIEVE	2	ACHIEVED	25	ACHIEVEMENT	3	ACHIEVEMENTS
1	ACHIEVERS	3	ACHIEVES	2	ACHIEVING	5	ACKNOWLEDGES	2	ACQUAINTED
15	ACQUAINTS	2	ACQUIRE	2	ACQUIRED	2	ACQUIRES	1	ACQUIRING
2	ACQUISITION	1	ACROSS	4	ACT	1	ACTED	2	ACTING
22	ACTION	1	ACTION/RESPONSE	4	ACTIONS	4	ACTIVE	1	ACTIVE-REST
2	ACTIVELY	178	ACTIVITIES	55	ACTIVITY	55	ACTS	3	ACTUAL
2	ACUITY	2	AD	1	ADAPT	1	ADAPTION	11	ADAPTS
4	ADD	25	ADDITIONAL	5	ADDRESS	4	ADDRESSES	2	ADDRESSING
4	ADDS	1	ADEQUACY	9	ADEQUATE	1	ADEQUATELY	1	ADHERED
3	ADJUST	2	ADJUSTING	10	ADJUSTMENT	2	ADJUSTMENTS	10	ADJUSTS
2	ADMINISTER	2	ADMINISTERED	1	ADMINISTERING	26	ADMINISTERS	30	ADMINISTRATION
36	ADMINISTRATIVE	12	ADMINISTRATOR	4	ADMINISTRATORS	7	ADMITS	1	ADMN
13	ADMONISHES	2	ADMONISHING	1	ADOLESCENT	1	ADOPT	2	ADOPTION
3	ADOPTS	1	ADS	1	ADULTS	2	ADVANCE	1	ADVANCEMENT
2	ADVANCES	7	ADVANTAGE	1	ADVANTAGES	1	ADVERTISED	1	ADVERTISES
1	ADVERTISING	1	ADVICE	12	ADVISES	1	ADVISING	4	ADVISOR
1	ADVISORS	1	ADVISORY	1	ADVOCACY	2	ADVOCATE	7	AESTHETIC
6	AFFAIRS	6	AFFECTING	2	AFFECTION	3	AFFECTIVE	1	AFFIRMATION
1	AFFIRMATIVE	2	AFFIRMS	2	AFFIXES	2	AFRAID	1	AFT
50	AFTER	6	AFTER-SCHOOL	1	AFTERNOON	9	AGAINST	3	AGE
28	AGENCIES	5	AGENCY	1	AGES	1	AGGRESSIVE	1	AGREEING
1	AGREEMENT	5	AGREES	1	AHEAD	11	AID	47	AIDE
2	AIDES	1	AIDE-EVALUATION	1	AIDED	92	AIDES	35	AIDS
22	AIMS	1	AIR	1	ALERT	3	ALERTS	98	ALL
1	ALLEVIATES	4	ALLOCATES	1	ALLOTMENTS	1	ALLOTS	2	ALLOW
1	ALLOWED	83	ALLOWS	1	ALMOST	4	ALONE	5	ALONG
2	ALOUF	8	ALOUD	1	ALPHABETIZES	1	ALPHABETICALLY	2	ALREADY
2	ALTERNATE	1	ALTERNATES	28	ALTERNATIVE	15	ALTERNATIVES	3	ALTERS
1	ALTHOUGH	2	ALWAYS	2	AMBIGUOUS	1	AMBIGUOUSLY	1	AMBULANCE
2	AMENITIES	22	AMONG	3	AMOUNT	2	AMPLE	48	AN
2	ANALOGIES	3	ANALOGY	8	ANALYSES	6	ANALYSIS	1	ANALYSZES
2	ANALYTIC	1	ANALYTICAL	3	ANALYZE	12	ANALYZES	2	ANALYZING
517	AND	2	AND/OR	3	ANECDOTAL	1	ANECDOTES	1	ANEW
3	ANGER	1	ANGLES	1	ANGRIER	6	ANGRY	1	ANIMALS
1	ANIMATED	2	ANIMATION	2	ANNOTATED	1	ANNOUNCED	4	ANNOUNCEMENTS
1	ANNOUNCES	2	ANNOYANCE	1	ANNOYED	1	ANNOYING	9	ANNUAL
1	ANNUALLY	13	ANOTHER	1	ANOTHERS	32	ANSWER	3	ANSWERED
7	ANSWERING	46	ANSWERS	3	ANTICIPATE	3	ANTICIPATED	5	ANTICIPATES
1	ANTICIPATORY	2	ANXIETIES	1	ANXIETY	2	ANXIETY-FREE	37	ANY
1	APART	2	APATHY	1	APOLOGIES	2	APOLOGY	3	APPEAR
2	APPEARANCE	2	APPEARANCES	8	APPEARS	1	APPICATIONS	1	APPLAUSE
1	APPLICABLE	4	APPLICANT	10	APPLICANTS	9	APPLICATION	4	APPLICATIONS
8	APPLIES	7	APPLY	2	APPLYING	7	APPOINTMENT	3	APPOINTMENTS
3	APPOINTS	6	APPRAISAL	8	APPRAISE	2	APPRAISES	1	APPRECIATE
1	APPRECIATES	2	APPRECIATION	1	APPRECIATIONS	1	APPRECIATIVE	1	APPRECIATIVELY
12	APPROACH	12	APPROACHES	1	APPROACHING	90	APPROPRIATE	2	APPROPRIATELY

4	APPROPRIATENESS	10	APPROVAL	5	APPROVED	19	APPROVES
1	APPROXIMATIONS	7	APTITUDE	1	APTITUDES	55	ARE
2	AREA-BASED	40	AREAS	1	ARFN•T	1	ARGUES
4	ARGUMENTS	3	ARISE	2	ARISES	7	ARISING
1	ARMS	22	AROUND	7	AROUSES	2	ARRANGE
13	ARRANGEMENTS	98	ARRANGES	1	ARRANGING	1	ARRIVAL
5	ARRIVES	2	ARRIVING	13	ART	5	ARTICLE
3	ARTICULATE	2	ARTICULATES	15	ARTIST	1	ARTS
1	AS-NEEDED	1	ASCERTAIN	1	ASCERTAINED	24	ASCERTAINS
3	ASKED	6	ASKING	271	ASKS	14	ASPECTS
1	ASSEMBLE	8	ASSEMBLES	3	ASSEMBLIES	2	ASSEMBLING
1	ASSESS	20	ASSESSES	2	ASSESSMENT	2	ASSIGN
4	ASSIGNING	33	ASSIGNMENT	2	ASSIGNMENT•S	41	ASSIGNMENTS
9	ASSIST	15	ASSISTANCE	6	ASSISTANT	1	ASSISTED
191	ASSISTS	9	ASSOCIATE	1	ASSOCIATIVE	2	ASSUME
1	ASSUMING	1	ASSURANCE	1	ASSURE	4	ASSURES
1	ATHLETIC	11	ATMOSPHERE	1	ATTACKS	6	ATTAIN
2	ATTAINMENT	1	ATTAINMENTS	1	ATTEMPT	21	ATTEMPTS
20	ATTENDANCE	1	ATTENDING	39	ATTENDS	42	ATTENTION
5	ATTENTIVELY	14	ATTITUDE	18	ATTITUDES	2	ATTITUDINAL
1	ATTRIBUTES	3	AUDIANCE	1	AUDIBLY	1	AUDIENCE
2	AUDIT	6	AUDITORY	1	AUTHENTICITY	1	AUTHORITARIAN
2	AUTHORITATIVELY	24	AUTHORITY	1	AUTHORIZED	7	AUTHORIZES
1	AUTOBIOGRAPHICAL	2	AUTONOMY	4	AUXILIARY	11	AVAILABILITY
6	AVERAGE	1	AVOID	33	AVOIDS	1	AWARDING
7	AWARENESS	1	AWARENESS-APPROV	9	AWAY	1	BABYSITTER
19	BACKGROUND	6	BACKGROUNDS	2	BACKS	5	BAD
2	BAG	2	BALANCES	1	BANK	1	BANKS
4	BARRIERS	2	BASE	8	BASED	5	BASES
39	BASIS	1	BATTLES	124	BE	1	BEANS
1	BEARS	5	BECAUSE	3	BECOME	5	BECOMES
5	BEEN	35	BEFORE	12	BEGIN	15	BEGINNING
1	BEHALF	1	BEHAVE	67	BEHAVIOR	1	BEHAVIOR-STATEME
2	BEHAVIORALLY	3	BEHAVIORS	5	BEHIND	28	BEING
1	BELL-SHAPED	1	BENEFICIAL	1	BENEFITS	1	BESIDES
9	BETTER	42	BETWEEN	5	BEYOND	1	BI-LINGUAL
1	BIASES	2	BIBLIOGRAPHIC	6	BIBLIOGRAPHIES	4	BIBLIOGRAPHY
1	BIDS	1	BIG	2	BIMODALLY	2	BINDS
1	BLANK	2	BLANKS	1	BLENDS	1	BLOCKS
1	BLUNTNESS	21	BOARD	1	BOARDING	5	BOARDS
2	BOND	21	BOOK	1	BOOKLET	1	BOOKLETS
2	BOOSTER	1	BOOTS	2	BORED	1	BORING
2	BORROWING	1	BOSSY	2	BOTH	1	BOUND
1	BOY-GIRL	9	BRAINSTORMING	3	BREADTH	6	BREAK
4	BREAKS	1	BREVITY	9	BRIEF	1	BRIEFER
9	BRING	13	BRINGS	3	BROAD	3	BROADCASTING
1	BROCHURE	1	BROTHERS	1	BROUGHT	19	BUDGET
5	BUILD	4	BUILDING	9	BUILDS	12	BULLETIN
7	BUS	7	BUSINESS	3	BUSY	8	BUT
5	CABINET	1	CABINETS	7	CAFETERIA	27	CAI
1	CALENDARS	11	CALL	2	CALLED	3	CALLING
3	CALM	2	CAMERA	1	CAMERAS	1	CAMP
2	CAMPAIGNS	2	CAMPUS	32	CAN	1	CAN•T
4	CANNOT	1	CANVASSES	1	CAPABILITIES	1	CAPABILITY
1	CAPACITY	1	CAPITALIZE	5	CAPITALIZES	10	CARD
4	CARDBOARD	31	CARDS	6	CARE	6	CAREER
5	CAREFULLY	2	CARES	11	CARRIES	1	CARRY
12	CASE	1	CASE-STUDY	7	CASES	1	CASUALLY

1	APPROXIMATING						
91	AREA						
8	ARGUMENT						
1	ARITHMETIC						
2	ARRANGEMENT						
1	ARRIVED						
17	ARTICLES						
296	AS						
17	ASK						
4	ASPIRATIONS						
7	ASSEMBLY						
26	ASSIGNED						
74	ASSIGNS						
1	ASSISTING						
53	ASSUMES						
184	AT						
2	ATTAINING						
2	ATTEND						
2	ATTENTIVE						
2	ATTRACT						
2	AUDIO						
1	AUTHORITATIVE						
1	AUTHORS						
79	AVAILABLE						
17	AWARE						
10	BACK						
1	BAFFLING						
2	BANTERS						
27	BASIC						
1	BEAR						
2	BECOMING						
24	BEGINS						
3	BEHAVIORAL						
2	BELIEF						
22	BEST						
1	BIAS						
2	BINDING						
10	BLACKBOARD						
1	BLOWS						
13	BODY						
31	BOOKS						
1	BORINGLY						
1	BOUNDARIES						
1	BREAKAGE						
1	BRIEFLY						
1	BROADER						
2	BUDGETARY						
2	BULLETINS						
212	BY						
4	CALENDAR						
35	CALLS						
2	CAMPAIGN						
3	CANDIDATES						
1	CAPACITIES						
1	CARD-BOX						
3	CAREFUL						
3	CARRYING						
1	CAT						

3.

3	CATALOG	11	CATALOGS	1	CATCH	1	CATEGORIZES
				2	CAUSES	2	CAUSING

1	CATEGORY
2	CAUTIONS

3	CATALOG
1	CAUSE
25	CENTER
1	CERTAINTY
1	CHALK
1	CHAMBER
28	CHANGES
3	CHAPERONES
1	CHARGED
10	CHECK
9	CHIEF
16	CHOICE
4	CHORES
1	CIRCULATION
3	CITY
8	CLARIFICATION
317	CLASS
174	CLASSROOM
4	CLEAN
12	CLEAR
1	CLERICAL/HOUSEKE
1	CLINIC
8	CLOSED-CIRCUIT
11	CLOSURE
1	CLUSTERS
4	CODE
2	COGNITION
1	COLLATES
5	COLLECTION
3	COLLOQUIAL
12	COME
2	COMMAND
2	COMMENSURATE
1	COMMERCIALLY
15	COMMITTEE
1	COMMUNICATING
1	COMMUNITYS
1	COMPELLED
4	COMPETITIVE
1	COMPLAINT
5	COMPLETED
4	COMPLEX
1	COMPLIMENTARY
5	COMPOSITION
1	COMPUTE
2	COMPUTES
6	CONCEPTUAL
4	CONCERNS
6	CONCLUSION
12	CONDITION
1	CONDUCTING
43	CONFERS
1	CONFLICTING
1	CONFUSE
1	CONGRATULATES
1	CONNOTATIONS
2	CONSEQUENCES
1	CONSISTENTLY

11	CATALOGS
2	CAUSE-EFFECT
2	CENTERED
1	CERTIFICATED
3	CHALKBOARD
1	CHAMPIONS
3	CHANGING
1	CHAPTERS
1	CHARISMA
2	CHECK-OUT
11	CHILD
6	CHOICES
2	CHOSEN
1	CITED
1	CIVIC
10	CLARIFIES
1	CLASS-AS-GROUP
7	CLASSROOMS
2	CLEAN-UP
1	CLEARER
1	CLEVER
5	CLINICS
2	CLOSELY
5	CLUB
1	CO-OPERATING
5	CODES
5	COGNITIVE
1	COLLEAGUE
2	COLLECTIONS
2	COLOR
2	COMES
1	COMMANDING
7	COMMENT
1	COMMISSION
23	COMMITTEES
26	COMMUNICATION
1	COMPANIES
4	COMPETENCE
1	COMPILE
7	COMPLAINTS
1	COMPLETELY
1	COMPLEXITY
2	COMPLIMENTS
2	COMPOUND
7	COMPUTER
8	CONCENTRATES
13	CONCERN
1	CONCERTS
4	CONCLUSIONS
3	CONDITIONAL
53	CONDUCTS
3	CONFIDENCE
1	CONFLICTS
4	CONFUSED
2	CONJUNCTION
1	CONNOTATIVE
8	CONSIDER
1	CONSOLIDATE

1	CATCH
2	CAUSES
9	CENTERS
3	CHAIR
6	CHALLENGE
8	CHANCE
3	CHANNELS
4	CHARACTER
5	CHART
4	CHECKING
1	CHILD•S
9	CHOOSE
2	CIRCLE
1	CITIZENRY
1	CIVIL
10	CLARIFY
22	CLASSES
1	CLASSWORK
1	CLEANING
17	CLEARLY
22	CLIENTS
2	CLIPS
3	CLOSER
1	CLUB•S
2	CO-WORKERS
1	CODIFICATION
2	COLD
15	COLLEAGUES
34	COLLECTS
1	COLORFUL
4	COMFORTABLE
2	COMMANDS
2	COMMENTARY
2	COMMIT
9	COMMON
2	COMMUNICATIONS
1	COMPANY
2	COMPETENCY
6	COMPILES
1	COMPLEMENT
3	COMPLETES
2	COMPLIANCE
1	COMPONENT
1	COMPREHENDS
1	COMPUTER-ASSISTE
37	CONCEPT
1	CONCERN/CONTROVE
1	CONCISE
4	CONCRETE
13	CONDITIONS
4	CONFER
2	CONFIDENT
1	CONFORMS
2	CONFUSING
2	CONJUNCTIONS
1	CONS
1	CONSIDERATE
1	CONSONANT

1	CATEGORIZES
2	CAUSING
11	CENTRAL
2	CHAIRMAN
1	CHALLENGES
1	CHANCES
1	CHAOTIC
5	CHARACTERISTICS
5	CHARTS
84	CHECKS
12	CHILDREN
26	CHOOSES
2	CIRCULARS
2	CITIZENS
1	CIVIL/LEGAL
5	CLARITY
1	CLASSIFIED
3	CLAUSES
6	CLEANS
1	CLER-WORK
13	CLIMATE
3	CLOCK
3	CLOSES
5	CLUBS
2	COACHES
1	CODING
15	COLLABORATES
4	COLLECT
13	COLLEGE
1	COLORS
4	COMFORTS
1	COMMEND
21	COMMENTS
1	COMMITMENTS
3	COMMUNICATE
134	COMMUNITY
2	COMPARABLE
3	COMPETENT
1	COMPILING
1	COMPLEMENTS
1	COMPLETING
1	COMPLICATES
5	COMPONENTS
7	COMPREHENSION
1	COMPUTERIZED
2	CONCEPT/PRINCIPL
4	CONCERNED
2	CONCISELY
2	CONDESCENDING
4	CONDUCIVE
26	CONFERENCE
2	CONFIDENTIALITY
1	CONFRONTATIONS
3	CONFUSION
1	CONNECTORS
1	CONSCIOUSLY
27	CONSIDERS
3	CONSTANT

1	CATEGORY
2	CAUTIONS
21	CERTAIN
14	CHAIRS
2	CHALLENGING
21	CHANGE
1	CHAPERONE
4	CHARGE
4	CHEATING
1	CHEERFUL
1	CHIN
2	CHOOSING
3	CIRCULATES
1	CITIZENS•
4	CLAPS
2	CLASH
2	CLASSIFIES
1	CLAY
4	CLEANUP
12	CLERICAL
1	CLIMAX
2	CLOSE
1	CLOSING
1	CLUES
2	COATS
1	COFFEE
1	COLLABORATIVE
3	COLLECTING
1	COLLOBORATES
2	COMBINES
3	COMING
10	COMMENDS
2	COMMERCE
1	COMMITS
13	COMMUNICATES
1	COMMUNITY•S
4	COMPANES
4	COMPETITION
1	COMPLAINS
12	COMPLETE
6	COMPLETION
1	COMPLIES
1	COMPOSES
1	COMPREHENSIVE
2	COMPUTERS
61	CONCEPTS
1	CONCERNING
6	CONCLUDES
1	CONDESCENDINGLY
6	CONDUCT
36	CONFERENCES
3	CONFIRMS
1	CONFRONTS
1	CONGENIAL
2	CONNECTS
1	CONSENSUS
4	CONSISTENT
3	CONSTANTLY

87	DETERMINES	2	DETERMINING	1	DETRACT	18	DEVELOP	3	DEVELOPED
3	DEVELOPER	9	DEVELOPING	85	DEVELOPMENT	3	DEVELOPMENTAL	17	DEVELOPMENTS
96	DEVELOPS	4	DEVIANT	1	DEVIATE	2	DEVICE	3	DEVICES
1	DEVIL*S	1	DEVISED	10	DEVISES	1	DEVISING	1	DEWEY
3	DIAGNOSE	1	DIAGNOSED	6	DIAGNOSES	9	DIAGNOSIS	6	DIAGNOSTIC
1	DIAGNOSTICALLY	2	DIAGRAM	5	DIAGRAMS	1	DIAL	3	DIALECT
3	DIALOGUE	1	DICTAPHONE	1	DICTATE	4	DICTATES	1	DICTATION
1	DICTATORIAL	2	DICTIONARY	2	DID	2	DIFFERENCE	10	DIFFERENCES
30	DIFFERENT	2	DIFFERENTIATED	4	DIFFERENTIATES	1	DIFFERENTIATION	3	DIFFERENTLY
3	DIFFERING	18	DIFFICULT	11	DIFFICULTIES	13	DIFFICULTY	3	DIGNIFIED
1	DIGRESSES	3	DIGRESSION	2	DIGRESSIONS	2	DIMINISHING	9	DIRECT
17	DIRECTED	3	DIRECTING	9	DIRECTION	16	DIRECTIONS	9	DIRECTLY
5	DIRECTOR	64	DIRECTS	3	DISABILITY	1	DISAGREEING	1	DISAGREEMENT
5	DISAGREES	5	DISAPPROVAL	1	DISAPPROVES	1	DISBURSEMENT	1	DISBURSEMENTS
1	DISCARDS	3	DISCIPLINARY	37	DISCIPLINE	4	DISCIPLINES	1	DISCOURAGE
7	DISCOURAGES	1	DISCOURTEOUS	10	DISCOVER	2	DISCOVERING	7	DISCOVERS
12	DISCOVERY	2	DISCREPENCIES	2	DISCRETION	1	DISCRIMINATE	2	DISCRIMINATION
33	DISCUSS	7	DISCUSSED	147	DISCUSSES	1	DISCUSSING	144	DISCUSSION
17	DISCUSSIONS	1	DISDAIN	1	DISENGAGES	1	DISGUSTED	1	DISIPLINE
1	DISJOINTED	2	DISLIKES	2	DISMISSAL	1	DISMISSES	2	DISORDER
1	DISORDERS	3	DISORGANIZED	1	DISPARAGINGLY	21	DISPLAYS	1	DISPLEASED
1	DISPLEASURE	1	DISPOSITION	3	DISPUTE	2	DISPUTES	3	DISPUTING
1	DISRUPTED	1	DISRUPTING	1	DISRUPTION	10	DISRUPTIVE	1	DISSATISFIED
1	DISSEMINATE	18	DISSEMINATES	1	DISSEMINATING	1	DISSEMINATION	1	DISTANCE
2	DISTINCTLY	6	DISTINGUISHES	2	DISTRACTING	1	DISTRACTINGLY	2	DISTRACTION
1	DISTRACTIONS	3	DISTRIBUTE	1	DISTRIBUTED	39	DISTRIBUTES	2	DISTRIBUTING
7	DISTRIBUTION	28	DISTRICT	2	DISTRICT-WIDE	1	DISTRUST	11	DISTURB
3	DISTURBANCE	6	DISTURBED	5	DISTURBING	1	DISTURBS	1	DITTO
3	DIVERGENT	1	DIVERSE	1	DIVERSITY	1	DIVERTING	1	DIVIDE
2	DIVIDES	4	DIVISION	1	DIVISIONS	1	DIVISIVE	17	DO
3	DOCTOR	41	DOES	2	DOESN*T	6	DOING	2	DOMAIN
1	DOMINANCE	1	DOMINATE	3	DOMINATING	1	DON*T	1	DONATE
1	DONATIONS	13	DONE	1	DONORS	4	DOOR	1	DOOR-TO-DOOR
1	DOUBLE	2	DOUBT	19	DOWN	1	DOWNGRADE	1	DOWNGRADES
1	DRAFT	4	DRAFTS	2	DRAMA	2	DRAMATIC	1	DRAMATICS
1	DRAMATIZE	6	DRAW	1	DRAWERS	8	DRAWS	4	DRESS
3	DRESSES	1	DRIFT	10	DRILL	17	DRILLS	1	DRIVES
1	DROP	1	DROP-OUT	6	DROP-OUTS	1	DRUG	1	DRY
1	DUPLICATES	2	DUE	1	DUPLICATE	5	DUPLICATED	20	DUPLICATES
2	DUPLICATING	2	DUPLICATOR	1	DUPLICATORS	138	DURING	2	DUSTS
33	DUTIES	4	DUTY	2	DYNAMIC	4	DYNAMICS	116	EACH
5	EARLIER	5	EARLY	1	EARN	1	EARNING	1	EARNS
1	EARPHONES	1	EARTHQUAKE	1	EASE	4	EASILY	4	EASY
2	EATING	1	ECOLOGY	2	ECONOMIC	2	ED	1	EDUCATIONAL
2	EDIT	1	EDITORIAL	1	EDITS	4	EDUC	19	EDUCATION
60	EDUCATIONAL	1	EDUCATORS	4	EFFECT	7	EFFECTIVE	14	EFFECTIVELY
14	EFFECTIVENESS	3	EFFECTS	2	EFFICIENCY	1	EFFICIENT	4	EFFICIENTLY
6	EFFORT	10	EFFORTS	1	EITHER	6	ELABORATES	1	ELABORATING
1	ELECT	1	ELECTED	3	ELECTION	1	ELECTIVES	1	ELECTRICAL
2	ELECTRONIC	1	ELEMENT	1	ELEMENTARY	7	ELEMENTS	5	ELICIT
15	ELICITS	3	ELIMINATES	3	EMBARRASSED	1	EMBARRASSES	1	EMBEDDED
1	EMBELLISHES	11	EMERGENCY	3	EMERGING	12	EMOTIONAL	8	EMOTIONALLY
7	EMOTIONS	2	EMOTIVE	1	EMPATHY	13	EMPHASIS	3	EMPHASIZE
24	EMPHASIZES	1	EMPHATIC	1	EMPLOYED	1	EMPLOYEE	3	EMPLOYEES
11	EMPLOYMENT	1	EN	2	ENABLE	1	ENABLING	1	ENCOMPASS
4	ENCOUNTER	3	ENCOURAGE	1	ENCOURAGED	6	ENCOURAGEMENT	228	ENCOURAGES
19	END	5	END-PRODUCT	2	ENDEAVORS	5	ENDS	1	ENERGIES
1	ENFORCE	1	ENFORCEMENT	5	ENFORCES	1	ENGAGE	1	ENGAGED

1	CONSTRAINED	1	CONSTRUCTION	1	CONSTRUCTIVELY	23	CONSTRUCTS	11	CONSULTANT
5	CONSULTANTS	1	CONSULTATION	1	CONSULTATIONS	1	CONSULTATIVE	19	CONSULTS
13	CONTACT	16	CONTACTS	1	CONTAGIOUS	1	CONTAINING	1	CONTEMPLATING
2	CONTEMPORARY	61	CONTENT	1	CONTENTS	6	CONTEXT	1	CONTEXTS
1	CONTINGENCIES	4	CONTINUAL	2	CONTINUALLY	1	CONTINUATION	4	CONTINUE
2	CONTINUITY	5	CONTINUOUS	2	CONTINUOUSLY	2	CONTRACT	2	CONTRACTS
1	CONTRACTUAL	2	CONTRADICTION	1	CONTRADICTORY	1	CONTRADICTS	1	CONTRARY
2	CONTRASTING	1	CONTRASTIVE	5	CONTRIBUTE	3	CONTRIBUTES	11	CONTRIBUTION
5	CONTRIBUTIONS	2	CONTRIVED	1	CONTRIVES	14	CONTROL	3	CONTROLLED
3	CONTROLLING	8	CONTROLS	2	CONTROVERSIAL	6	CONTROVERSY	1	CONVENTION
1	CONVENTIONAL	1	CONVENTIONS	2	CONVERGENT	2	CONVERSATION	1	CONVERSATIONS
1	CONVEY	3	CONVEYS	1	CONVINCE	1	CONVINCES	1	COOPERATE
6	COOPERATES	27	COOPERATING	9	COOPERATION	3	COOPERATIVE	2	COOPERATIVELY
2	COORDINATE	57	COORDINATES	1	COORDINATING	2	COORDINATION	1	COORDINATOR
1	COORDINATORS	1	COPARTICIPANT	1	COPE	4	COPIES	1	COPING
7	COPY	2	CORPORAL	26	CORRECT	1	CORRECTED	2	CORRECTING
1	CORRECTION	3	CORRECTIONS	4	CORRECTLY	2	CORRECTNESS	20	CORRECTS
3	CORRELATES	1	CORRESPOND	2	CORRESPONDENCE	1	COST	2	COST-EFFECTIVENE
1	COSTS	3	COSTUME	3	COSTUMES	2	COT	1	COUGHS
4	COULD	1	COULDN*T	10	COUNCIL	2	COUNSELEE	10	COUNSELEES
24	COUNSELING	46	COUNSELOR	17	COUNSELORS	18	COUNSELS	2	COUNTER-EXAMPLES
1	COUNTING	2	COUNTY	104	COURSE	3	COURSE-RELATED	18	COURSES
1	COURT	3	COURTEOUS	1	COURTEOUSLY	2	COURTESY	8	COVER
18	COVERED	1	COVERING	9	COVERS	1	CRACKERS	1	CRAFTS
2	CRAYON	8	CREATE	1	CREATED	19	CREATES	5	CREATING
1	CREATION	14	CREATIVE	2	CREATIVITY	1	CREDIBILITY	4	CREDIT
1	CRIPPLED	1	CRISIS	33	CRITERIA	1	CRITERION	7	CRITICAL
5	CRITICALLY	16	CRITICISM	1	CRITICISMS	6	CRITICIZE	13	CRITICIZES
1	CRITICIZING	2	CRITIQUE	4	CROSS	1	CROSS-AGE	1	CROSS-INDEXED
1	CRUSH	1	CRYING	3	CUE	14	CUES	1	CULMINATE
1	CULMINATION	1	CULTIVATE	3	CULTURAL	7	CULTURE	13	CUMULATIVE
1	CUPBOARD	1	CUPS	1	CURIOSITY	47	CURRENT	6	CURRICULA
13	CURRICULAR	152	CURRICULUM	1	CURRICULUM-RENEW	2	CURRICULUMS	4	CURT
1	CURVE	2	CUSTODIAL	2	CUSTODIAN	1	CUSTOMS	8	CUTS
4	CYCLE	16	DAILY	1	DAILY-DEMAND	1	DANGER	36	DATA
25	DATE	4	DATES	1	DAUGHTER	14	DAY	5	DAY*S
2	DAY-TO-DAY	1	DAY/CARE	6	DAYS	1	DEADLINE	8	DEAL
2	DEALING	2	DEALS	1	DEALT	1	DEAR	1	DEBATE
1	DEBATES	4	DECIDE	1	DECIDED	28	DECIDES	1	DECIDING
1	DECIMAL	9	DECISION	2	DECISION-MAKING	7	DECISIONS	1	DECLARATIVE
1	DECOR	2	DECORATE	1	DECORATING	3	DECORATION	4	DECORATIONS
1	DECREASES	2	DEDUCTIVE	1	DEFEATING	2	DEFEND	1	DEFENDS
1	DEFENSE	1	DEFERS	1	DEFICIENCIES	1	DEFICIENCY	3	DEFICIENT
1	DEFIES	1	DEFINE	1	DEFINED	30	DEFINES	5	DEFINING
3	DEFINITE	1	DEFINITION	1	DEFINITIONS/MEAN	5	DEGREE	1	DELAYS
5	DELEGATES	1	DELEGATION	1	DELIBERATE	2	DELIBERATELY	1	DELINQUENTS
7	DELIVERS	1	DEMANDING	11	DEMANDS	2	DEMONSTRATE	57	DEMONSTRATES
19	DEMONSTRATION	5	DEMONSTRATIONS	1	DEMONSTRATIVE	2	DENIGRATES	1	DENIGRATING
1	DENOTATIVE	1	DENOUNCES	18	DEPARTMENT	2	DEPARTMENTAL	2	DEPARTMENTS
1	DEPENDENCE	2	DEPENDENT	3	DEPENDS	1	DEPLETED	2	DEPRECATES
1	DEPRECIATES	1	DEPRESSED	1	DEPRIVED	2	DEPRIVES	1	DEPT
4	DEPTH	1	DERIVE	1	DERIVES	2	DESCRIBE	20	DESCRIBES
1	DESCRIPING	5	DESCRIPTION	2	DESCRIPTIONS	1	DESCRIPTIVE	1	DESERVING
17	DESIGN	2	DESIGNATE	2	DESIGNATED	7	DESIGNATES	3	DESIGNED
1	DESIGNER	1	DESIGNES	2	DESIGNING	47	DESIGNS	1	DESIRABILITY
3	DESIRABLE	1	DESIRE	12	DESIRED	1	DESIRES	3	DESIRING
9	DESK	2	DESKS	1	DESTRUCTIVELY	2	DETAIL	3	DETAILED
2	DETAILS	1	DETENTIONS	15	DETERMINE	1	DETERMINED	1	DETERMINERS

87	DETERMINES	2	DETERMINING	1	DETRACT	18	DEVELOP	3	DEVELOPED
3	DEVELOPER	9	DEVELOPING	85	DEVELOPMENT	3	DEVELOPMENTAL	17	DEVELOPMENTS
96	DEVELOPS	4	DEVIANT	1	DEVIATE	2	DEVICE	3	DEVICES
1	DEVIL*S	1	DEVISED	10	DEVISES	1	DEVISING	1	DEWEY
3	DIAGNOSE	1	DIAGNOSED	6	DIAGNOSES	9	DIAGNOSIS	6	DIAGNOSTIC
1	DIAGNOSTICALLY	2	DIAGRAM	5	DIAGRAMS	1	DIAL	3	DIALECT
3	DIALOGUE	1	DICTAPHONE	1	DICTATE	4	DICTATES	1	DICTATION
1	DICTATORIAL	2	DICTIONARY	2	DID	2	DIFFERENCE	10	DIFFERENCES
30	DIFFERENT	2	DIFFERENTIATED	4	DIFFERENTIATES	1	DIFFERENTIATION	3	DIFFERENTLY
3	DIFFERING	18	DIFFICULT	11	DIFFICULTIES	13	DIFFICULTY	3	DIGNIFIED
1	DIGRESSES	3	DIGRESSION	2	DIGRESSIONS	2	DIMINISHING	9	DIRECT
17	DIRECTED	3	DIRECTING	9	DIRECTION	16	DIRECTIONS	9	DIRECTLY
5	DIRECTOR	64	DIRECTS	3	DISABILITY	1	DISAGREEING	1	DISAGREEMENT
5	DISAGREES	5	DISAPPROVAL	1	DISAPPROVES	1	DISBURSEMENT	1	DISBURSEMENTS
1	DISCARDS	3	DISCIPLINARY	37	DISCIPLINE	4	DISCIPLINES	1	DISCOURAGE
7	DISCOURAGES	1	DISCOURTEOUS	10	DISCOVER	2	DISCOVERING	7	DISCOVERS
12	DISCOVERY	2	DISCREPENCIES	2	DISCRETION	1	DISCRIMINATE	2	DISCRIMINATION
33	DISCUSS	7	DISCUSSED	147	DISCUSSES	1	DISCUSSING	144	DISCUSSION
17	DISCUSSIONS	1	DISDAIN	1	DISENGAGES	1	DISGUSTED	1	DISIPLINE
1	DISJOINTED	2	DISLIKES	2	DISMISSAL	1	DISMISSES	2	DISORDER
1	DISORDERS	3	DISORGANIZED	1	DISPARAGINGLY	21	DISPLAYS	1	DISPLEASED
1	DISPLEASURE	1	DISPOSITION	3	DISPUTE	2	DISPUTES	3	DISPUTING
1	DISRUPTED	1	DISRUPTING	1	DISRUPTION	10	DISRUPTIVE	1	DISSATISFIED
1	DISSEMINATE	18	DISSEMINATES	1	DISSEMINATING	1	DISSEMINATION	1	DISTANCE
2	DISTINCTLY	6	DISTINGUISHES	2	DISTRACTING	1	DISTRACTINGLY	2	DISTRACTION
1	DISTRACTIONS	3	DISTRIBUTE	1	DISTRIBUTED	39	DISTRIBUTES	2	DISTRIBUTING
7	DISTRIBUTION	28	DISTRICT	2	DISTRICT-WIDE	1	DISTRUST	11	DISTURB
3	DISTURBANCE	6	DISTURBED	5	DISTURBING	1	DISTURBS	1	DITTO
3	DIVERGENT	1	DIVERSE	1	DIVERSITY	1	DIVERTING	1	DIVIDE
2	DIVIDES	4	DIVISION	1	DIVISIONS	1	DIVISIVE	17	DO
3	DOCTOR	41	DOES	2	DOESN*T	6	DOING	2	DOMAIN
1	DOMINANCE	1	DOMINATE	3	DOMINATING	1	DON*T	1	DONATE
1	DONATIONS	13	DONE	1	DONORS	4	DOOR	1	DOOR-TO-DOOR
1	DOUBLE	2	DOUBT	19	DOWN	1	DOWNGRADE	1	DOWNGRADES
1	DRAFT	4	DRAFTS	2	DRAMA	2	DRAMATIC	1	DRAMATICS
1	DRAMATIZE	6	DRAW	1	DRAWERS	8	DRAWS	4	DRESS
3	DRESSES	1	DRIFT	10	DRILL	17	DRILLS	1	DRIVES
1	DROP	1	DROP-OUT	6	DROP-OUTS	1	DRUG	1	DRY
1	DUPLICATES	2	DUE	1	DUPLICATE	5	DUPLICATED	20	DUPLICATES
2	DUPLICATING	2	DUPLICATOR	1	DUPLICATORS	138	DURING	2	DUSTS
33	DUTIES	4	DUTY	2	DYNAMIC	4	DYNAMICS	116	EACH
5	EARLIER	5	EARLY	1	EARN	1	EARNING	1	EARNS
1	EARPHONES	1	EARTHQUAKE	1	EASE	4	EASILY	4	EASY
2	EATING	1	ECOLOGY	2	ECONOMIC	2	ED	1	EDUCATIONAL
2	EDIT	1	EDITORIAL	1	EDITS	4	EDUC	19	EDUCATION
60	EDUCATIONAL	1	EDUCATORS	4	EFFECT	7	EFFECTIVE	14	EFFECTIVELY
14	EFFECTIVENESS	3	EFFECTS	2	EFFICIENCY	1	EFFICIENT	4	EFFICIENTLY
6	EFFORT	10	EFFORTS	1	EITHER	6	ELABORATES	1	ELABORATING
1	ELECT	1	ELECTED	3	ELECTION	1	ELECTIVES	1	ELECTRICAL
2	ELECTRONIC	1	ELEMENT	1	ELEMENTARY	7	ELEMENTS	5	ELICIT
15	ELICITS	3	ELIMINATES	3	EMBARRASSED	1	EMBARRASSES	1	EMBEDDED
1	EMBELLISHES	11	EMERGENCY	3	EMERGING	12	EMOTIONAL	8	EMOTIONALLY
7	EMOTIONS	2	EMOTIVE	1	EMPATHY	13	EMPHASIS	3	EMPHASIZE
24	EMPHASIZES	1	EMPHATIC	1	EMPLOYED	1	EMPLOYEE	3	EMPLOYEES
11	EMPLOYMENT	1	EN	2	ENABLE	1	ENABLING	1	ENCOMPASS
4	ENCOUNTER	3	ENCOURAGE	1	ENCOURAGED	6	ENCOURAGEMENT	228	ENCOURAGES
19	END	5	END-PRODUCT	2	ENDEAVORS	5	ENDS	1	ENERGIES
1	ENFORCE	1	ENFORCEMENT	5	ENFORCES	1	ENGAGE	1	ENGAGED

7 ENGAGES
1 ENLARGE
9 ENRICHMENT
6 ENTHUSIASM
3 ENUMERATES
2 ENVIRONMENTS
1 EQUALS
1 EQUIVALENTS
5 ESCORTS
11 ESTABLISH
6 ESTIMATES
1 EVALUATED
11 EVALUATIVE
9 EVERY
2 EXACTLY
14 EXAMINES
2 EXCELS
2 EXCHANGE
1 EXCITES
1 EXECUTIVE
2 EXHIBIT
2 EXPANDS
2 EXPEDIENCY
1 EXPERIENTIAL
12 EXPERIMENTS
9 EXPLAINING
1 EXPLICITLY
3 EXPRESSED
2 EXPRESSIVE
3 EXTENDS
3 EXTERNAL
1 EXTRAORDINARY
1 EYE-HAND
17 FACILITATE
2 FACING
21 FACTS
2 FAILING
3 FAIRLY
5 FAMILIARITY
5 FASHION
1 FAULTY
1 FEASIBLE
13 FEELINGS
40 FIELD
1 FIGURATIVE
1 FILL
2 FILM/FILMSTRIP
8 FINAL
10 FINDINGS
1 FINISH
4 FIRM
2 FIX
7 FLEXIBLE
12 FOCUS
1 FOLK
3 FOOD
1 FORGETS
2 FORMAT

5 ENGLISH
1 ENLISTS
9 ENSURES
3 ENTHUSIASTIC
2 ENUMERATIVE
3 EQUAL
1 EQUATIONS
1 EQUIVOCALLY
1 ESPECIAL
4 ESTABLISHED
25 ETC
118 EVALUATES
3 EVEN
3 EVERYDAY
16 EXAM
9 EXAMPLE
1 EXCEPTION
1 EXCHANGES
1 EXCLAMATORY
3 EXEMPLARY
25 EXHIBITS
4 EXPECTANCY
3 EXPEDITES
8 EXPERIMENT
1 EXPERT
101 EXPLAINS
3 EXPLORATION
25 EXPRESSES
1 EXPULSION
1 EXTENSION
13 EXTRA
2 EXTRAPOLATES
6 EYES
13 FACILITATES
1 FACT
16 FACTUAL
5 FAILS
2 FALSE
1 FAMILIARIZATION
3 FAST
1 FAVOR
2 FEATURES
2 FEELS
1 FIELD-TRIPS
2 FIGURE
2 FILL-IN-THE-BLAN
17 FILMS
11 FINANCIAL
14 FINDS
2 FINISHED
34 FIRST
1 FIXES
1 FLIRTIVE
2 FOCUSED
5 FOLLOW
2 FOOT
1 FORGOTTEN
6 FORMATION

8 ENHANCE
1 ENMITIES
6 ENTER
1 ENTHUSIASTICALLY
1 ENUNCIATES
1 EQUALIZE
1 EQUIP
1 ERASES
8 ESSAY
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1 ETHICAL
16 EVALUATING
1 EVENLY
1 EVERYTHING
1 EXAMINATION
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1 EXCEPTIONAL
1 EXCITED
1 EXCLUDING
1 EXERCISE
2 EXHORTS
8 EXPECTATIONS
1 EXPENSE
9 EXPERIMENTAL
4 EXPERTISE
13 EXPLANATION
1 EXPLORATORY
1 EXPRESSING
3 EXTEMPORANEOUSLY
1 EXTENSIVE
11 EXTRA-CURRICULAR
5 EXTREME
1 FABRIC
2 FACILITATOR
8 FACTOR
16 FACULTY
7 FAILURE
1 FALTER
21 FAMILIARIZES
1 FASTER
1 FAVORITES
17 FEEDBACK
1 FELLOW
1 FIELDS
34 FILE
1 FILLING
10 FILMSTRIP
1 FINANCIALLY
2 FINES
2 FINISHES
3 FIT
1 FLANDERS
1 FLOOR
18 FOCUSES
15 FOLLOW-UP
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9 FORM
9 FORMER

2 ENJOYMENT
5 ENOUGH
5 ENTERING
8 ENTIRE
31 ENVIRONMENT
2 EQUALIZES
65 EQUIPMENT
6 ERROR
1 ESSAYS
2 ESTABLISHING
1 EVAL
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7 EVIDENCE
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12 EXAMS
1 EXCERPTS
1 EXCITEDLY
3 EXECUTES
2 EXERCISES
11 EXISTING
8 EXPECTED
24 EXPERIENCE
9 EXPERIMENTATION
2 EXPERTS
6 EXPLANATIONS
5 EXPLORES
9 EXPRESSION
1 EXTEMPORIZES
1 EXTENSIVENESS
1 EXTRACTS
2 EXTREMELY
3 FACETS
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2 FAULT
2 FEAR
4 FEEL
1 FELT
1 FIFTEEN
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20 FIND
2 FINGER
5 FIRE
1 FITS
12 FLASH
1 FLOW
2 FOLDER
2 FOLLOWING
3 FORCES
12 FORMAL
2 FORMERLY

2 ENJOYS
1 ENRICHES
6 ENTERS
9 ENTRANCE
1 ENVIRONMENTAL
2 EQUALLY
3 EQUIPS
15 ERRORS
1 ESSENTIAL
6 ESTABLISHMENT
29 EVALUATE
5 EVALUATIONS
11 EVENTS
1 EVIDENT
2 EXAMINE
1 EXCELLENCE
1 EXCESSIVELY
1 EXCITEMENT
1 EXECUTION
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1 EXPAND
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13 EXPLAIN
2 EXPLICIT
10 EXPRESS
5 EXPRESSIONS
1 EXTENDED
6 EXTENT
3 EXTRANEOUS
8 EYE
6 FACIAL
1 FACILITY
7 FACTORY
1 FAILED
3 FAIR
13 FAMILIAR
1 FAREWELL
1 FAULT-FINDING
1 FEARS
4 FEELING
9 FEW
3 FIGHTING
1 FILING
13 FILM
1 FILTERS
5 FINDING
1 FINGER-MANIPULAT
1 FIRES
1 FIVE
6 FLEXIBILITY
1 FOCAL
2 FOLDERS
7 FOLLOWS
2 FORESEES
3 FORMALLY
24 FORMS

5	FORMULATE	5	FORMULATES	2	FORMULATING	5	FORMULATION	1	FORTH
1	FORTHCOMING	2	FORUMS	1	FORWARD	2	FORWARDS	1	FOSTER
6	FOSTERS	1	FOUND	1	FOUR-YEAR	2	FRAGMENTARY	1	FRAGMENTS
1	FRAMES	1	FRAMEWORKS	2	FRANKLY	17	FREE	16	FREEDOM
8	FREELY	1	FREQUENCY	5	FREQUENT	12	FREQUENTLY	1	FRESHMAN
1	FRIDAY	2	FRIENDLINESS	16	FRIENDLY	2	FRIENDSHIP	3	FRIENDSHIPS
204	FROM	14	FRONT	3	FROWNS	1	FRUSTRATING	1	FRUSTRATION
3	FRUSTRATIONS	2	FULFILLS	12	FULL	2	FULL-TIME	4	FULLY
1	FUN	6	FUNCTION	2	FUNCTIONAL	1	FUNCTIONALLY	3	FUNCTIONING
24	FUNCTIONS	12	FUND	5	FUND-RAISING	1	FUNDAMENTAL	3	FUNDAMENTALS
2	FUNDING	7	FUNDS	1	FUNNING	1	FURNISH	2	FURNITURE
12	FURTHER	3	FURTHUR	9	FUTURE	1	FUTURES	1	GADFLY
1	GAIN	1	GAINS	41	GAME	42	GAMES	1	GATHER
2	GATHERED	1	GATHERING	11	GATHERS	5	GEARS	37	GENERAL
1	GENERALITIES	1	GENERALIZATION	8	GENERALIZATIONS	3	GENERALIZE	3	GENERALIZES
2	GENERALLY	1	GENERATES	1	GENTLE	1	GENTLY	1	GESTICULATES
3	GESTURE	7	GESTURES	22	GET	2	GET-ACQUAINTED	10	GETS
1	GETTING	2	GIFTED	2	GIGGLES	1	GIMMICK	2	GIMMICKS
1	GIST	20	GIVE	1	GIVE-AND-TAKE	24	GIVEN	186	GIVES
11	GIVING	2	GLARES	1	GLOBAL	1	GLOBES	7	GO
17	GOAL	115	GOALS	12	GOES	7	GOING	23	GOOD
1	GOODS	2	GOOFING	2	GOVERNANCE	1	GOVERNING	1	GOVERNMENT
11	GRADE	1	GRADE-LEVELS	2	GRADED	36	GRADES	10	GRADING
11	GRADUALLY	2	GRADUATE	6	GRADUATES	1	GRADUATION	5	GRAMMAR
2	GRAMMATICAL	1	GRAMMER	2	GRANTS	3	GRASP	5	GREAT
3	GREATER	8	GREETS	4	GRIEVANCE	1	GRIEVANCES	2	GROOMING
1	GROUNDS	182	GROUP	4	GROUPING	101	GROUPS	1	GROUPS*
3	GROWING	1	GROWN-UPS	1	GROWS	25	GROWTH	1	GRUDGES
1	GUESSING	2	GUEST	3	GUESTS	41	GUIDANCE	2	GUIDANCE-RELATED
10	GUIDE	5	GUIDELINES	12	GUIDES	4	HABITS	3	HAD
2	HALF	1	HALF-HOUR	9	HALL	2	HALLS	4	HALLWAYS
1	HALO	4	HAND	1	HAND-EYE	5	HANDBOOK	1	HANDBOOKS
1	HANDED	4	HANDICAPPED	3	HANDLE	1	HANDLED	9	HANDLES
4	HANDLING	8	HANDS	1	HANDWORK	1	HANG	1	HAPPENED
1	HAPPENS	1	HARDWARE	2	HARMONIOUS	1	HARMONY	1	HARSH
80	HAS	1	HASN*T	35	HAVE	7	HAVING	71	HE
1	HE*D	1	HE*LL	5	HE*S	12	HEAD	1	HEADLINES
7	HEADS	16	HEALTH	1	HEAR	1	HEARD	1	HEARING
4	HEARS	1	HEARSAY	2	HEAT	2	HELD	47	HELP
1	HELP-GIVER	1	HELPED	2	HELPERS	4	HELPFUL	1	HELPING
191	HELPS	6	HER	1	HERITAGE	1	HERS	1	HESITANTLY
1	HESITATE	2	HESITATES	1	HIERARCHICALLY	1	HIERARCHY	5	HIGH
1	HIGH-ABILITY-GRO	2	HIGHER	2	HIGHER-ORDER	1	HIGHEST	1	HIGHLIGHTING
47	HIM	44	HIMSELF	1	HINDERS	1	HINTS	1	HIRED
3	HIRES	212	HIS	2	HISTORICAL	1	HISTORY	1	HITS
1	HM-	1	HOC	4	HOLD	1	HOLDING	36	HOLDS
1	HOLE	1	HOLIDAY	1	HOLIDAYS	27	HOME	3	HOME-COMMUNITY-S
3	HOMEBOUND	1	HOMEROOM	1	HOMES	14	HOMEWORK	1	HONEY
1	HONOR	1	HONORS	1	HOOK	1	HOPE	4	HOPES
3	HOSPITAL	2	HOSTILITY	1	HOSTS	2	HOUR	3	HOURS
1	HOUSE-TO-HOUSE	6	HOUSEKEEPING	3	HOUSING	34	HOW	16	HUMAN
1	HUMILIATING	11	HUMOR	1	HURRIES	4	HURRY	5	HURT
1	HYGIENE	1	HYPERCRITICAL	2	HYPOTHESES	2	HYPOTHESIS	2	HYPOTHESIZE
2	HYPOTHETICAL	1	I	1	IA	1	IBM	1	ICE
17	IDEA	77	IDEAS	1	IDENTIFICATION	36	IDENTIFIES	8	IDENTIFY
4	IDENTIFYING	2	IDENTITY	1	IDIOM	1	IDLE	45	IF
1	IF-THEN	1	IGNOR	2	IGNORANCE	7	IGNORES	1	IGNORING
4	ILLUSTRATE	2	ILLUSTRATES	2	ILLUSTRATIONS	1	IMAGINATIVE	1	IMAGINING

1	IMITATE	1	IMITATION	10	IMMEDIATE	4	IMMEDIATELY
1	IMMUNIZATION	1	IMPARTIAL	4	IMPARTIALLY	1	IMPATIENCE
1	IMPERATIVE	1	IMPERSONALLY	6	IMPLEMENT	6	IMPLEMENTATION
11	IMPLEMENTS	1	IMPLICATION	5	IMPLICATIONS	2	IMPLICITLY
1	IMPLIES	8	IMPORTANCE	16	IMPORTANT	5	IMPOSES
11	IMPROVE	2	IMPROVED	11	IMPROVEMENT	2	IMPROVEMENTS
4	IMPROVING	1405	IN	44	IN-SERVICE	1	IN-TAKE
2	INACCURACIES	1	INACCURATE	1	INADEQUACIES	2	INADEQUATE
2	INCENTIVES	1	INCIDENT	1	INCIDENTAL	2	INCIDENTS
11	INCLUDES	1	INCOME	13	INCOMING	2	INCOMPLETE
2	INCONSISTENCIES	1	INCONVENIENT	13	INCORPORATES	1	INCORRECT
1	INCREASE	13	INCREASES	1	INCUMBRANCE	3	INDEPENDENCE
10	INDEPENDENTLY	1	INDETERMINATE	1	INDEX	2	INDICATE
16	INDICATES	1	INDICATING	3	INDICATIONS	1	INDICATIVE
1	INDIRECTLY	153	INDIVIDUAL	1	INDIVIDUALIZATIO	4	INDIVIDUALIZE
1	INDIVIDUALIZES	12	INDIVIDUALLY	5	INDIVIDUALS	1	INDUCE
2	INDUCTS	2	INDUSTRIES	2	INDUSTRY	1	INEFFECTIVE
4	INFERENCE	1	INFERIOR	1	INFERS	1	INFLECTION
1	INFLEXIBLE	3	INFLUENCE	2	INFLUENCES	1	INFLUENTIALS
19	INFORMAL	8	INFORMALLY	119	INFORMATION	1	INFORMATIVE
82	INFORMS	3	INFREQUENTLY	13	INITIAL	1	INITIALLY
2	INITIATED	29	INITIATES	1	INITIATING	4	INITIATIVE
1	INK	4	INNOVATES	5	INNOVATION	1	INNOVATIONAL
9	INNOVATIVE	1	INOBTRUSIVELY	4	INPUT	1	INQUIRE
7	INQUIRY	1	INSECURE	1	INSERTS	3	INSERVICE
1	INSIGHTS	14	INSISTS	5	INSPECTS	1	INSTALLATION
2	INSTANCE	2	INSTANCES	4	INSTEAD	1	INSTILLING
2	INSTITUTIONS	1	INSTRUCT	85	INSTRUCTION	2	INSTRUCTION/CURR
139	INSTRUCTIONAL	16	INSTRUCTIONS	1	INSTRUCTION	7	INSTRUCTOR
4	INSTRUMENT	18	INSTRUMENTS	1	INSULT	1	INSULIS
20	INSURES	1	INTAKE	5	INTEGRATES	1	INTELLECT
7	INTELLIGENCE	1	INTENDED	1	INTENDS	1	INTENSIVE
5	INTENTIONS	1	INTENTLY	1	INTER-CULTURAL	2	INTER-PERSONAL
1	INTER-RELATIONSH	8	INTER-SCHOOL	1	INTERACT	1	INTERACTING
2	INTERACTIONS	4	INTERACTS	1	INTERCOM	1	INTERCULTURAL
2	INTERDISCIPLINAR	53	INTEREST	15	INTERESTED	3	INTERESTING
1	INTERFERENCE	2	INTERMEDIARY	10	INTERN	10	INTERNS
1	INTERPOLATES	2	INTERPRET	5	INTERPRETATION	2	INTERPRETER
2	INTERRELATE	1	INTERRELATED	1	INTERRELATIONS	1	INTERROGATIVE
1	INTERRUPTED	3	INTERRUPTIONS	15	INTERRUPTS	6	INTERVALS
1	INTERVIEWEES	2	INTERVIEWER	2	INTERVIEWING	28	INTERVIEWS
1	INTRA-DEPARTMENT	3	INTRA-SCHOOL	6	INTRODUCE	2	INTRODUCED
7	INTRODUCTION	3	INTRODUCTORY	1	INTUITIVE	2	INVALID
12	INVENTORY	1	INVESTIGATE	2	INVESTIGATES	1	INVESTIGATION
15	INVITES	1	INVOLVE	8	INVOLVED	4	INVOLVEMENT
6	INVOLVING	1	IPI	1	IQ	1	IRREGULAR
8	IRRELEVANT	1	IRREPARABLE	2	IRRESPONSIBLE	2	IRRITATING
3	ISOLATED	9	ISOLATES	1	ISSUE	8	ISSUES
1	IT'S	7	ITEM	23	ITEMS	9	ITS
21	JOB	3	JOBS	2	JOIN	4	JOINS
13	JOKES	1	JOT	1	JOURNAL	2	JOURNALS
1	JUDGEMENTAL	9	JUDGEMENTS	1	JUDGES	3	JUICE
2	JUNK	6	JUSTIFIES	4	JUSTIFY	1	JUXTAPOSES
10	KEEP	2	KEEPING	78	KEEPS	32	KEY
1	KEYPUNCHES	3	KIND	1	KINDLY	1	KINDS
1	KNEES	11	KNOW	47	KNOWLEDGE	1	KNOWN
14	LAB	1	LABELLING	6	LABELS	2	LABOR
4	LABS	5	LACK	3	LACKS	1	LAMINATING

1	IMMOBILE
2	IMPATIENT
8	IMPLEMENTING
1	IMPLIED
2	IMPRESSION
2	IMPROVES
2	INABILITY
1	INANIMATE
1	INCLUDED
1	INCONGRUENT
1	INCORRECTLY
10	INDEPENDENT
1	INDICATED
2	INDIRECT
9	INDIVIDUALIZED
6	INDUCTIVE
2	INEFFICIENT
1	INFLECTIONS
1	INFORM
2	INFORMED
3	INITIATE
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20	INNOVATIONS
9	INQUIRES
4	INSIGHT
2	INSTALLS
1	INSTITUTIONAL
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44	INSTRUCTS
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2	INTELLECTUAL
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14	INTERACTION
1	INTERDEPENDENT
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1	INVITED
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30	IT
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4	JUDGEMENT
1	JUMPS
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1	LATER	12	LATEST	2	LAUGH	5	LAUGHS	1	LAUNDERS		
5	LAW	8	LAY	2	LAYS	2	LEAD	11	LEADER		
6	LEADERS	9	LEADERSHIP	6	LEADING	21	LEADS	1	LEAGUE		
1	LEANS	14	LEARN	7	LEARNED	5	LEARNER	1	LEARNER-SUPPORTI		
8	LEARNERS	204	LEARNING	1	LEARNING/LISTENI	22	LEARNS	7	LEAST		
7	LEAVE	8	LEAVES	3	LEAVING	2	LECTERN	113	LECTURE		
1	LECTURED	10	LECTURER	24	LECTURES	10	LECTURING	1	LECTURN		
1	LED	1	LEFT	6	LEGAL	1	LEGIBLY	1	LEGISLATES		
1	LEICESTERSHIRE	13	LENGTH	4	LESS	1	LESSI	241	LESSON		
1	LESSON-S	20	LESSONS	7	LETS	1	LETTER	6	LETTERS		
36	LEVEL	4	LEVELS	1	LEVER	1	LIABILITY	24	LIAISON		
12	LIBRARIAN	59	LIBRARY	9	LIFE	1	LIFE-PATTERN	5	LIGHT		
7	LIKE	1	LIKED	1	LIKES	3	LIMIT	4	LIMITATIONS		
1	LIMITED	18	LIMITS	8	LINE	2	LINES	2	LINGUISTICS		
1	LINKS	1	LIPS	33	LIST	1	LIST/CARD	1	LISTEN		
16	LISTENING	29	LISTENS	1	LISTLESSNESS	22	LISTS	13	LITERATURE		
4	LITTLE	1	LIVE	1	LIVED	2	LIVES	2	LIVING		
3	LOAD	1	LOADS	2	LOAN	4	LOANS	14	LOCAL		
3	LOCALLY	6	LOCATE	3	LOCATED	6	LOCATES	4	LOCATING		
6	LOCATION	2	LOCKED	1	LOCKERS	1	LOCKS	2	LOGIC		
4	LOGICAL	1	LOGISTICAL	13	LONG	2	LONGER-INTERVALI	5	LOOK		
3	LOOKING	25	LOOKS	1	LOOP	1	LOSE	3	LOSES		
1	LOT	3	LOW	1	LOW-ABILITY-GROU	4	LOWERS	1	LUCID		
1	LUCK	25	LUNCH	3	LUNCHROOM	15	MACHINE	5	MACHINERY		
15	MACHINES	11	MADE	9	MAGAZINES	1	MAIL	27	MAIN		
8	MAINTAIN	1	MAINTAINING	134	MAINTAINS	10	MAINTENANCE	32	MAJOR		
3	MAJORITY	33	MAKE	3	MAKE-UP	132	MAKES	14	MAKING		
1	MAN-S	1	MANAGEABLE	6	MANAGEMENT	1	MANAGERIAL	2	MANAGERS		
2	MANAGES	1	MANDATORY	1	MANIFESTED	1	MANIFESTS	1	MANIPULATES		
1	MANIPULATION	1	MANIPULATIVE	22	MANNER	2	MANNERISMS	3	MANUAL		
9	MANY	4	MAPS	3	MARK	5	MARKS	1	MASSE		
1	MASSED	27	MASTER	9	MASTER-T	2	MASTERED	1	MASTERY		
2	MAT	1	MATCH	2	MATCHES	4	MATCHING	216	MATERIAL		
379	MATERIALS	1	MATERIALS--ACTIV	1	MATH	1	MATH-SCIENCE	1	MATHEMATICAL		
1	MATRIX	30	MATTER	1	MATTER-OF-FACT	2	MATTER/SKILLS	9	MATTERS		
1	MATURATION	1	MATURITY	1	MAXIMIZE	2	MAXIMUM	10	MAY		
1	MEAGER	2	MEALS	13	MEANING	3	MEANINGFUL	2	MEANINGS		
19	MEANS	3	MEASURABLE	8	MEASURE	1	MEASURED	1	MEASURES		
1	MEASURING	3	MECHANICS	89	MEDIA	1	MEDIA-CLASSROOM	2	MEDIATOR		
4	MEDICAL	1	MEDICATION	1	MEDICINE	1	MEEKLY	20	MEET		
26	MEETING	93	MEETINGS	50	MEETS	21	MEMBER	31	MEMBERS		
1	MEMBERSHIPS	1	MEMORIZED	2	MEMORIZES	2	MEMORY	3	MEMOS		
6	MENTAL	1	MERIT	1	MERIT-DEMERIT	1	MESS	2	MESSAGES		
3	MESSY	4	MET	26	METHOD	1	METHODOLOGIES	4	METHODOLOGY		
57	METHODS	2	MICRO-TEACHING	1	MICROPHONE	2	MIDDLE	7	MIGHT		
1	MILES	1	MILK	3	MIMEOGRAPH	1	MIMEOGRAPHING	1	MIMEOS		
2	MIND	1	MINIMAL	1	MINIMIZE	1	MINIMIZES	3	MINIMUM		
1	MINOR	17	MINORITY	10	MINUTES	2	MIRROR	2	MISBEHAVING		
1	MISBEHAVIOR	2	MISCONCEPTION-S	1	MISPRONOUNCES	2	MISTAKE	13	MISTAKES		
1	MISUNDERSTANDING	2	MIXED	2	MIXES	1	MIXTURE	3	MOBILIZE		
1	MOBILIZES	1	MOD	3	MODALITY	12	MODE	2	MODEL		
2	MODELS	1	MODERN	3	MODES	6	MODIFICATION	2	MODIFICATIONS		
1	MODIFIERS	5	MODIFIES	3	MODIFY	1	MODIFYING	2	MODULAR		
1	MODULATES	1	MODULATION	1	MODULE	1	MOMENT	1	MONDAY		
15	MONEY	2	MONIES	3	MONITOR	2	MONITORIAL	11	MONITORING		
31	MONITORS	1	MONOPOLIZE	1	MONOPOLIZING	1	MONOPOLY	1	MONOTONE		
1	MONTHLY	4	MOOD	1	MORAL	2	MORALE	20	MORE		

10

1	MORNING	21	MOST	3	MOTIVATE	1	MOTIVATED	2	MOTIVATES
3	MOTIVATING	5	MOTIVATION	2	MOTIVATIONS	1	MOTIVES	1	MOTOR
1	MOUNT	3	MOVE	1	MOVEMENT	7	MOVEMENTS	10	MOVES
3	MOVIE	2	MOVIES	2	MOVING	8	MUCH	3	MULTI-MEDIA
1	MULTI-SENSORY	9	MULTIPLE	1	MURALS	1	MUSCLE	1	MUSCLES
1	MUSEUMS	8	MUSIC	1	MUSICAL	2	MUSICIAN	1	MUST
1	MUTILATED	3	MUTUAL	14	NAME	13	NAMES	1	NARRATIVE
1	NARROW	1	NARROWLY	4	NATIONAL	1	NATIVE	4	NATURE
1	NEA	1	NEARBY	1	NEAT	1	NEATLY	1	NEATNESS
34	NECESSARY	32	NEED	46	NEEDED	2	NEEDING	1	NEEDLESSLY
112	NEEDS	1	NEGATION	9	NEGATIVE	2	NEGATIVELY	1	NEGATIVES
5	NEGOTIATES	3	NEGOTIATIONS	4	NEIGHBORHOOD	1	NEIGHBORLY	1	NEITHER
2	NERVOUS	1	NERVOUSLY	1	NEUTRAL	4	NEVER	280	NEW
4	NEWER	2	NEWLY	1	NEWS	2	NEWSLETTER	3	NEWSPAPER
7	NEWSPAPERS	17	NEXT	1	NICELY	1	NICKNAMES	2	NIGHT
20	NO	1	NOD	5	NODS	4	NOISE	1	NOISY
7	NON-ACADEMIC	6	NON-ANGLO	1	NON-CRITICAL	1	NON-DIRECTIVE	1	NON-HUMAN
1	NON-LECTURE	1	NON-PARTICIPATIN	1	NON-PRINTED	3	NON-PROFESSIONAL	2	NON-READING
2	NON-RESPONDING	1	NON-SCHOOL	1	NON-SELF-CORRECT	1	NON-TEST	3	NON-THREATENING
1	NON-VERB	13	NON-VERBAL	2	NON-VERBALLY	1	NONCOMMITAL	1	NONE
1	NONREADING	1	NOR	3	NORMAL	75	NOT	1	NOTATIONS
5	NOTE	2	NOTE-TAKING	1	NOTEBOOK	2	NOTEBOOKS	2	NOTED
80	NOTES	2	NOTHING	1	NOTICE	14	NOTICES	1	NOUNS
1	NOW	1	NOWHERE	14	NUMBER	2	NUMBERS	1	NUMBERS)
1	NUMERICAL	3	NURSE	6	NURSERY	1	NURTURES	1	NUTRITIONALLY
2	OBEDIENCE	2	OBEY	3	OBJECT	1	OBJECTIFY	34	OBJECTIVE
2	OBJECTIVELY	69	OBJECTIVES	3	OBJECTS	1	OBLIVIOUS	13	OBSERVATION
2	OBSERVATIONAL	4	OBSERVATIONS	8	OBSERVE	2	OBSERVED	2	OBSERVERS
45	OBSERVES	6	OBSERVING	3	OBTAIN	3	OBTAINABLE	1	OBTAINED
2	OBTAINING	16	OBTAINS	1	OBTRUSIVELY	1	OBVIOUS	1	OBVIOUSLY
1	OCCASIONALLY	1	OCCUPATION	6	OCCUPATIONAL	1	OCCUPIED	1991	OF
7	OFF	2	OFFER	2	OFFERED	23	OFFERS	25	OFFICE
2	OFFICER	1	OFFICERS	2	OFFICES	1	OFFICIALLY	7	OFFICIALS
3	OFTEN	1	OK	3	OLD	1	OLDER	1	OMITS
1	OMITTED	674	ON	1	ON-CALL	3	ON-GOING	2	ON-SITE
1	ON-THE-JOB	5	ONCE	30	ONE	1	ONE-FOURTH	3	ONES
5	ONGOING	13	ONLY	3	OPAQUE	11	OPEN	1	OPEN-END
2	OPEN-ENDED	1	OPENING	2	OPENLY	2	OPENNESS	5	OPENS
1	OPERATE	39	OPERATES	1	OPERATING	25	OPERATION	2	OPERATIONAL
4	OPERATIONS	1	OPERATIVE	1	OPHTHALMOGRAPH	9	OPINION	5	OPINIONS
12	OPPORTUNITIES	4	OPPORTUNITY	2	OPPOSITE	1	OPTIMISTIC	1	OPTIMISTICALLY
1	OPTIMIZES	1	OPTION	1	OPTIONAL	110	OR	12	ORAL
3	ORALLY	17	ORDER	3	ORDERED	1	ORDERING	1	ORDERLY
20	ORDERS	1	ORDINARY	9	ORGANIZATION	9	ORGANIZATIONAL	9	ORGANIZATIONS
11	ORGANIZE	2	ORGANIZED	56	ORGANIZES	5	ORGANIZING	1	ORIENT
16	ORIENTATION	5	ORIENTS	10	ORIGINAL	1	ORIGINALITY	1	ORIGINALLY
133	OTHER	20	OTHERS	101	OUT	2	OUT-OF-SCHOOL	6	OUTCOME
2	OUTCOMES	3	OUTDATED	1	OUTDOOR	1	OUTGOING	1	OUTLETS
17	OUTLINE	14	OUTLINES	1	OUTLINING	1	OUTREACH	29	OUTSIDE
1	OUTSIDES	2	OUTSTANDING	26	OVER	1	OVER-DIRECT	1	OVER-PROTECTIVE
1	OVER-TELL	1	OVER-TIME	5	OVERALL	1	OVERARCHING	1	OVEREXAGGERATES
4	OVERHEAD	1	OVERLONG	1	OVERLY	1	OVERPLANNING	1	OVERSEES
1	OVERSIMPLIFY	1	OVERTIME	1	OVERUSES	2	OVERVIEWS	101	OWN
7	P	2	PACE	7	PACES	2	PACKAGE	1	PACKAGES
6	PACKET	6	PACKETS	2	PACKING	2	PAGE	4	PAGES
1	PAINED	1	PAINSTAKING	2	PAINT	4	PAINTS	2	PAIRS
1	PAMPHLET	2	PAMPHLETS	7	PANEL	1	PANELIST	1	PANTOMIMES
16	PAPER	32	PAPERS	2	PARAGRAPHS	1	PARAMETERS	24	PARAPROFESSIONAL

16	PARENT	1	PARENT-HOME-COMM	1	PARENT-PARENT	2	PARENT-SCHOOL	2	PARENT-TEACHER		
1	PARENT-TEACHING	145	PARENTS	3	PARENTS*	1	PARK	1	PARLIAMENTARY		
16	PART	1	PART-TIME	1	PARTIALITY	1	PARTICIPANT	6	PARTICIPANTS		
24	PARTICIPATE	1	PARTICIPATED	62	PARTICIPATES	3	PARTICIPATING	28	PARTICIPATION		
19	PARTICULAR	1	PARTICULARS	7	PARTIES	2	PARTLY	1	PARTNERS		
6	PARTS	1	PARTY	3	PASS	1	PASS-FAIL	2	PASSAGE		
2	PASSED	13	PASSES	4	PASSIVE	7	PAST	1	PASTES		
2	PATHOLOGY	1	PATIENCE	2	PATIENT	1	PATROLS	7	PATTERN		
9	PATTERNS	1	PAUSE	3	PAUSES	2	PAY	1	PAYS		
1	PEDAGOGICAL	1	PEDANTIC	1	PEEP	1	PEER	2	PEERS		
1	PEN	1	PENALTIES	14	PEOPLE	4	PER	3	PERCEIVES		
2	PERCENT	2	PERCENTAGE	2	PERCEPTIONS	8	PERFORM	9d	PERFORMANCE		
4	PERFORMANCES	2	PERFORMED	1	PERFORMING	32	PERFORMS	41	PERIOD		
10	PERIODIC	26	PERIODICALLY	7	PERIODICALS	13	PERIOUS	1	PERIPHERAL		
5	PERMANENT	8	PERMISSION	2	PERMISSIVE	1	PERMIT	7	PERMITS		
1	PEROGATIVES	1	PERPLEXITY	14	PERSON	40	PERSONAL	1	PERSONALITIES		
5	PERSONALITY	3	PERSONALLY	47	PERSONNEL	2	PERSONS	1	PERSPECTIVE		
1	PERSPECTIVES	1	PERT	3	PERTAINING	2	PERTINENCE	17	PERTINENT		
1	PESSIMISTIC	1	PETITIONED	1	PETS	2	PHASE	1	PHASES		
3	PHILOSOPHICAL	1	PHILOSOPHIES	7	PHILOSOPHY	2	PHONE	1	PHONES		
1	PHONETICALLY	1	PHONICS	1	PHONOGRAPH	1	PHONY	1	PHOTOGRAPHY		
3	PHRASE	9	PHRASES	1	PHRASING	1	PHYS	25	PHYSICAL		
5	PHYSICALLY	1	PICKETS	1	PICKS	7	PICTURE	20	PICTURES		
1	PIECE	1	PIECES	8	PILOT	1	PITHY	12	PLACE		
1	PLACED	15	PLACEMENT	6	PLACEMENTS	18	PLACES	1	PLACING		
1	PLAGIARISM	2	PLAIN	59	PLAN	22	PLANNED	56	PLANNING		
298	PLANS	1	PLANS/UNITS	9	PLANT	1	PLANTS	1	PLATFORM		
1	PLAUSIBLE	22	PLAY	3	PLAYED	4	PLAYER	4	PLAYGROUND		
9	PLAYING	21	PLAYS	1	PLAYTHINGS	3	PLEASANT	1	PLEASANTLY		
1	PLOTS	1	PLUGS	1	PLURAL	1	POEMS	13	POINT		
4	POINTED	1	POINTING	77	POINTS	3	POISE	1	POISONS		
3	POLICE	1	POLICES	21	POLICIES	15	POLICY	1	POLICY-MAKING		
2	POLITICIANS	1	POLITICS	1	POLLS	1	POLYSYLLABIC	22	POOR		
1	POORLY	1	POPULAR	3	POPULATION	1	PORTFOLIO	1	PORTFOLIOS		
5	POSES	10	POSITION	2	POSITIONS	26	POSITIVE	2	POSITIVELY		
1	POSSESSIONS	2	POSSIBILITIES	5	POSSIBILITY	22	POSSIBLE	3	POST		
1	POST-GRADUATE	4	POST-TEST	2	POSTERS	1	POSTPONE	3	POSTPONES		
1	POSTULATES	1	POSTURE	16	POTENTIAL	1	POTPOURRI	1	POWER		
1	PPBS	1	PRACTICA	9	PRACTICAL	1	PRACTICALITY	16	PRACTICE		
13	PRACTICES	1	PRACTICUM	9	PRAISE	21	PRAISES	1	PRAISING		
1	PRATICE	2	PRE-	1	PRE-ARRANGED	1	PRE-INSTRUCTIONA	1	PRE-PLANNED		
3	PRE-PRACTICUM	3	PRE-SCHOOL	5	PRE-SERVICE	18	PRE-TEST	1	PREARRANGED		
1	PREASSIGNED	1	PRECEDING	1	PRECISE	1	PRECONCEIVED	1	PRECONCEPTIONS		
1	PREDETERMINED	1	PREDICT	1	PREDICTABLE	2	PREDICTION	1	PREDISCUSSES		
2	PREDOMINANTLY	2	PREFERENCE	3	PREFERENCES	1	PREFERENTIAL	4	PREFERRED		
1	PREFERS	1	PREJUDICE	2	PREJUDICES	2	PRELIMINARY	1	PREMATURE		
1	PREOCCUPIED	20	PREPARATION	12	PREPARE	23	PREPARED	142	PREPARES		
14	PREPARING	2	PREPLANNED	1	PREPOSITIONAL	3	PRESCRIBED	6	PRESCRIBES		
3	PRESCRIPTION	1	PRESCRIPTIONS	2	PRESCRIPTIVE	3	PRESENCE	39	PRESENT		
88	PRESENTATION	11	PRESENTATIONS	10	PRESENTED	7	PRESENTING	58	PRESENTS		
1	PRESICES	1	PRESS	1	PRESSURE	1	PRESSURES	1	PRETENDS		
4	PRETESTS	11	PREVENT	1	PREVENTION	1	PREVENTIVE	3	PREVENTS		
1	PREVIEW	1	PREVIEWING	1	PREVIEWS	31	PREVIOUS	4	PREVIOUSLY		
4	PRIMARY	31	PRINCIPAL	1	PRINCIPAL*S	8	PRINCIPALS	3	PRINCIPLE		
12	PRINCIPLES	3	PRINTED	5	PRINTED-NONPRINT	2	PRINTS	9	PRIOR		
11	PRIORITIES	2	PRIORITY	1	PRIVACY	1	PRIVATE	3	PRIVATELY		
5	PRIVILEGES	1	PROB	4	PROBES	4	PROBING	143	PROBLEM		
1	PROBLEM-CLASS	1	PROBLEM-COMMUNIT	1	PROBLEM-HOME	2	PROBLEM-ORIENTED	1	PROBLEM-SCHOOL		

11	PROBLEM-SOLVING	164	PROBLEMS	24	PROCEDURE	66	PROCEDURES	1	PROCEED
2	PROCEEDING	1	PROCEEDS	17	PROCESS	17	PROCESSES	2	PROCESSING
1	PROCUREMENT	4	PROCURES	4	PRODS	1	PRODUCE	1	PRODUCED
2	PRODUCES	1	PRODUCT	5	PRODUCTION	1	PRODUCTIVITY	1	PROFESSION
55	PROFESSIONAL	1	PROFESSIONALS	2	PROFICIENCY	1	PROFIENCY	3	PROFILE
9	PROFILES	1	PROFITABLE	1	PROFITED	124	PROGRAM	3	PROGRAMS
22	PROGRAMMED	2	PROGRAMMERS	5	PROGRAMMING	107	PROGRAMS	1	PROGRAMS/GOALS
64	PROGRESS	1	PROGRESSION	3	PROGRESSIVELY	35	PROJECT	1	PROJECTED
1	PROJECTING	4	PROJECTIONS	12	PROJECTOR	11	PROJECTORS	66	PROJECTS
1	PROLONG	1	PROMISING	5	PROMOTE	7	PROMOTES	1	PROMOTING
4	PROMPT	2	PROMPTLY	2	PROMPTS	1	PRONOUNCE	1	PRONOUNCES
1	PRONOUNS	1	PROOFREAD	2	PROP	5	PROPER	2	PROPERLY
1	PROPERTIES	1	PROPERTY	1	PROPOSAL	4	PROPOSALS	1	PROPOSED
2	PROPOSES	2	PROPOSITIONS	1	PROPRIETY	1	PROPS	1	PROS
5	PROSPECTIVE	2	PROTECTION	1	PROTECTS	11	PROVIDE	176	PROVIDES
3	PROVIDING	1	PROVISION	1	PROVISIONS	1	PROVOCATIVE	1	PROVOKE
2	PROVOKES	3	PSYCH	2	PSYCHIATRIC	6	PSYCHOLOGICAL	2	PSYCHOLOGICALLY
2	PSYCHOLOGY	9	PTA	26	PUBLIC	1	PUBLICATION	3	PUBLICATIONS
1	PUBLICIZES	8	PUBLICLY	6	PUBLISHED	3	PULLS	1	PUNCTUAL
1	PUNCTUATION	2	PUNISHES	1	PUNISHING	8	PUNISHMENT	1	PUNISHMENTS
2	PUNITIVE	2	PUNS	10	PUPIL	1	PUPILS	1	PUPPET
2	PURCHASE	1	PURCHASED	4	PURCHASES	2	PURCHASING	14	PURPOSE
1	PURPOSELY	19	PURPOSES	1	PURSUE	1	PURSUED	1	PURSUING
2	PUSHES	2	PUT	24	PUTS	1	PUTTING	1	PUZZLE
2	PUZZLED	1	PUZZLEMENT	12	PUZZLES	5	QUALIFIED	1	QUALIFIES
1	QUALIFYING	1	QUALITIES	3	QUALITY	2	QUARRELS	1	QUERIES
1	QUERY	65	QUESTION	2	QUESTION-ANSWER	11	QUESTIONING	17	QUESTIONNAIRE
4	QUESTIONNAIRES	228	QUESTIONS	1	QUICKENS	6	QUICKLY	14	QUIET
2	QUIETLY	5	QUIETS	9	QUIZ	2	QUIZZES	2	QUO
1	QUOTIENT	1	RACES	2	RACIAL	1	RACIAL/SOCIOECON	1	RADIO
1	RAID	2	RAISE	4	RAISES	12	RAISING	1	RAKES
1	RANDOM	13	RANGE	1	RAP	1	RAPID	5	RAPPORT
7	RATE	7	RATES	2	RATHER	3	RATING	2	RATIONAL
3	RATIONALE	1	RE-ESTABLISH	1	RE-EVALUATES	1	RE-TESTS	1	RE-USE
1	RE-WRITTEN	8	REACH	2	REACHED	5	REACHING	3	REACT
3	REACTION	4	REACTIONS	6	REACTS	14	READ	2	READER
1	READERS	2	READIES	2	READILY	9	READINESS	46	READING
6	READINGS	38	READS	6	READY	5	REAL	5	REALISTIC
2	REALITY	1	REALIZATIONS	2	REALIZES	1	REALLOCATES	1	REAR
1	REARRANGES	5	REASON	5	REASONABLE	8	REASONING	14	REASONS
2	REASSURANCE	1	REASSURE	2	REASSURES	6	RECALL	5	RECALLS
1	RECEIVE	4	RECEIVED	33	RECEIVES	6	RECENT	17	RECESS
1	RECIPROCAL	4	RECITATION	1	RECITE	4	RECOGNITION	6	RECOGNIZE
6	RECOGNIZES	1	RECOMENDATIONS	1	RECOMMENDATION	13	RECOMMENDATIONS	8	RECOMMENDS
39	RECORD	1	RECORDED	10	RECORDER	5	RECORDERS	6	RECORDING
1	RECORDINGS	89	RECORDS	2	RECREATIONAL	1	RECRUIT	1	RECRUITS
3	RECURSIVE	1	RECYCLING	1	RED	1	REDEFINES	1	REDESIGNS
2	REDIRECT	4	REDIRECTS	1	REDISTRIBUTES	2	REDUCE	2	REDUNDANT
3	REFEREE	15	REFERENCE	4	REFERENCES	3	REFERENT	5	REFERENTS
11	REFERRAL	5	REFERRALS	2	REFERRED	21	REFERS	1	REFINES
2	REFINING	1	REFLECTS	2	REFOCUSES	1	REFORM	1	REFORMULATES
3	REFRAINS	1	REFRESHING	3	REFRESHMENTS	4	REFUSES	1	REGAINS
2	REGARD	9	REGARDING	3	REGIONAL	1	REGISTER	1	REGISTRATION
15	REGULAR	9	REGULARLY	3	REGULATES	2	REGULATIONS	7	REINFORCE
15	REINFORCEMENT	1	REINFORCER	1	REINFORCERS	7	REINFORCES	1	REITERATES
1	REITERATION	1	REJECTING	5	REJECTS	10	RELATE	32	RELATED
60	RELATES	24	RELATING	13	RELATION	32	RELATIONS	33	RELATIONSHIP
15	RELATIONSHIPS	5	RELATIVE	1	RELAX	6	RELAXED	1	RELAXES

1	RELEASED	3	RELEASES	2	RELEVANCE	1	RELEVANCE-RATIO	1	RELEVANCY
44	RELEVANT	1	RELIABLE	2	RELIANCE	1	RELIES	2	RELOCATES
1	RELY	6	REMAIN	11	REMAINS	2	REMARK	13	REMARKS
22	REMEDIAL	14	REMEDIATION	1	REMEMBER	1	REMEMBERING	1	REMINDING
5	REMINDS	1	REMOVAL	1	REMOVE	1	REMOVED	7	REMOVES
1	RENTED	1	RENTS	4	REPAIR	1	REPAIRING	7	REPAIRS
5	REPEAT	1	REPEATED	4	REPEATEDLY	1	REPEATING	17	REPEATS
5	REPETITION	1	REPETITIONS	1	REPHRASE	4	REPHRASES	1	REPHRASING
1	REPLENSISHES	1	REPLICATE	3	REPLIES	19	REPORT	3	REPORTING
66	REPORTS	1	REPRESENTATION	2	REPRESENTATIVES	3	REPRESENTS	2	REPRESSES
7	REPRIMAND	4	REPRIMANDING	9	REPRIMANDS	2	REPRODUCES	2	REPROVES
46	REQUEST	7	REQUESTED	3	REQUESTING	47	REQUESTS	6	REQUIRE
13	REQUIRED	15	REQUIREMENTS	12	REQUIRES	12	REQUIRING	1	REQUISITE
7	REQUISITION	1	REQUISITIONS	90	RESEARCH	28	RESEARCHES	1	RESENT
2	RESENTS	2	RESERVATION	3	RESERVE	2	RESERVES	1	RESIDENT
1	RESIDENTIALLY	11	RESIDENTS	1	RESISTANCE	1	RESISTS	3	RESOLVE
1	RESOLVED	1	RESOLVES	1	RESOLVING	2	RESORT	89	RESOURCE
1	RESOURCEFUL	86	RESOURCES	2	RESOURCES/SERVIC	5	RESPECT	6	RESPECTS
1	RESPOND	6	RESPONDENT	2	RESPONDING	12	RESPONDS	73	RESPONSE
29	RESPONSES	34	RESPONSIBILITIES	66	RESPONSIBILITY	1	RESPONSIBLTIY	7	RESPONSIBLE
2	RESPONSIVE	12	REST	1	RESTATEMENT	3	RESTATES	1	RESTATING
4	RESTLESS	1	RESTORED	1	RESTRAINS	1	RESTRICTIONS	1	RESTRICTS
2	RESTRUCTURES	1	RESTS	29	RESULTS	1	RETAIL	1	RETAKE
1	RETARDATION	6	RETARDED	1	RETEACH	2	RETICENT	1	RETREIVAL
1	RETRIEVAL	3	RETRIEVE	1	RETRIEVES	1	RETRIEVING	4	RETURN
12	RETURNS	3	REVEAL	2	REVEALED	15	REVEALS	37	REVIEW
1	REVIEWED	2	REVIEWING	85	REVIEWS	2	REVISE	1	REVISED
5	REVISES	2	REVISION	2	REVISITS	3	REWARD	5	REWARDS
1	REWORDS	1	REWORKING	4	REWRITES	1	REWRITING	1	REWRITTEN
2	RHETORICAL	4	RHYME	2	RHYMES	1	RHYTHM	4	RICH
2	RIDICULES	9	RIGHT	6	RIGHTS	1	RIGOROUSLY	1	ROCKS
26	ROLE	2	ROLE-PLAYING	10	ROLES	20	ROLL	1	ROMANCES
31	ROOM	10	ROOMS	1	ROOTED	2	ROTATES	1	ROTATING
1	ROTE	1	ROUGH	19	ROUTINE	4	ROUTINES	1	ROUTINIZED
2	ROW	1	ROWS	2	RULE	28	RULES	2	RUN
1	RUN-OFFS	1	RUN-ON	6	RUNNING	9	RUNS	3532	S
1	S*	15	S*S	1	S-BODY	1	S-PARENT	1	S-PLANNING
5	S-S	4	S-T	1	SABBATICAL	1	SAFE	1	SAFEKEEPING
7	SAFETY	3	SAID	1	SAKE	3	SALARY	1	SALIENT
12	SAME	5	SAMPLE	3	SAMPLES	3	SARCASM	6	SARCASTIC
2	SARCASTICALLY	4	SATISFACTION	1	SATISFIES	1	SATISFYING	1	SAVE
1	SAVES	7	SAY	1	SAYING	11	SAYS	1	SCALE
1	SCALED	4	SCANS	34	SCHEDULE	6	SCHEDULED	76	SCHEDULES
9	SCHEDULING	1	SCHOLARLY	1	SCHOLARSHIP	4	SCHOLARSHIPS	4	SCHOLASTIC
236	SCHOOL	18	SCHOOL*S	1	SCHOOL-COMMUNITY	1	SCHOOL/CLASS	1	SCHOOLING
30	SCHOOLS	2	SCIENCE	2	SCOLDS	8	SCOPE	1	SCORE
15	SCORES	3	SCORING	1	SCOUR	2	SCORLS	2	SCRATCHES
4	SCREENS	1	SCRIPT	2	SCUFFLING	2	SEARCH	9	SEARCHES
1	SEARCHING	4	SEAT	2	SEATED	9	SEATING	6	SEATS
1	SEC	7	SECOND	3	SECONDARY	1	SECONDHAND	1	SECRETARIAL
1	SECRETARIES	6	SECRETARY	1	SECTIONAL	4	SECTIONS	2	SECURE
5	SECURES	8	SECURITY	35	SEE	2	SEEK	16	SEEMS
1	SEEM	3	SEEMS	12	SEES	2	SEGMENT	2	SEGMENTS
14	SELECT	4	SELECTED	6	SELECTING	17	SELECTION	1	SELECTIONS
1	SELECTIVE	3	SELECTIVELY	57	SELECTS	16	SELF	2	SELF-ANALYSIS
2	SELF-CONFIDENCE	4	SELF-CONTROL	3	SELF-CORRECTING	1	SELF-CRITICISM	1	SELF-DIRECTED
1	SELF-DIRECTION	1	SELF-DISCIPLINE	4	SELF-EVALUATION	1	SELF-EVIDENT	1	SELF-EXPRESSION
2	SELF-IMBEDDED	6	SELF-INSTRUCTION	1	SELF-PITYING	1	SELF-RESPONSIBIL	2	SELF-SPACE

2	SELF-SUPPORTING	1	SELF-TEST	1	SELF-TESTS	1	SELF-WORTH	1	SELL
1	SEMANTIC	2	SEMESTER	1	SEMI-LECTURE/DIS	6	SEMINARS	11	SENATE
2	SENDING	14	SENDS	23	SENIOR	1	SENIOR-T/DEPARTM	6	SENSE
1	SENSITIVE	5	SENSITIVITY	1	SENSORIAL	1	SENSORY	2	SENT
7	SENTENCE	36	SENTENCES	1	SEPARATE	1	SEPARATELY	2	SEPARATES
9	SEQUENCE	1	SEQUENCING	11	SEQUENTIAL	1	SEQUENTIALLY	1	SERIAL
5	SERIES	1	SERIOUSLY	1	SERIOUSNESS	5	SERVE	40	SERVES
11	SERVICE	35	SERVICES	1	SERVING	20	SESSION	18	SESSIONS
15	SET	71	SETS	3	SETTING	4	SETTINGS	1	SETTLED
6	SETTLES	1	SEVEN	10	SEVERAL	2	SEVERE	1	SEWS
2	SEX	1	SEXES	8	SHAKES	2	SHAMES	1	SHAPE
1	SHAPING	21	SHARE	25	SHARES	3	SHARING	1	SHARPEN
1	SHAVING	3	SHE	6	SHEET	9	SHEETS	1	SHELF
10	SHELVES	1	SHELVING	1	SHIFTING	5	SHIFTS	1	SHOES
9	SHORT	9	SHOULD	1	SHOUT	2	SHOUTS	14	SHOW
4	SHOWING	1	SHOWN	48	SHOWS	2	SICK	1	SIDE
1	SIDE-TRACKED	4	SIDES	1	SIFT	1	SIGHT	1	SIGHTS
5	SIGN	1	SIGN-OUT	2	SIGN-UP	6	SIGNAL	1	SIGNATURE
1	SIGNED	4	SIGNIFICANCE	4	SIGNIFICANT	2	SIGNING	7	SIGNS
9	SILENCE	3	SILENT	2	SILENTLY	8	SIMILAR	1	SIMILARITY
1	SIMILARLY	9	SIMPLE	1	SIMPLER	1	SIMPLY	4	SIMULATION
1	SIMULATIONS	1	SIMULTANEOUSLY	1	SINCERE	1	SINCERELY	4	SINGLE
1	SINGLE-S	4	SINGLES	1	SINGLY	2	SINGS	1	SINGULAR
1	SISTERS	5	SIT	1	SITE	4	SITES	12	SITS
1	SITTING	39	SITUATION	1	SITUATIONAL	25	SITUATIONS	7	SIZE
1	SIZES	2	SKETCH	1	SKETCHES	1	SKETCHY	15	SKILL
5	SKILLED	1	SKILLFUL	65	SKILLS	1	SKIMS	1	SKIPS
1	SKIT	1	SKITS	1	SLAMS	2	SLANG	1	SLEEPING
3	SLIDE	3	SLIDES	4	SLIP	4	SLIPS	1	SLOPPILY
13	SLOW	7	SLOWER	7	SLOWLY	2	SLOWS	93	SMALL
1	SMALLER	1	SMART-ALECK	1	SMARTER	8	SMILES	1	SMOCKS
1	SMOOTH	2	SMOOTHLY	4	SNACK	1	SNACKS	15	SO
19	SOCIAL	1	SOCIALIZING	1	SOCIETAL	2	SOCIETY	3	SOCIODRAMA
2	SOCIOECONOMIC	1	SOCIOGRAM	1	SOCIOLOGY	3	SOCRATIC	3	SOFTWARE
2	SOLICIT	6	SOLICITS	1	SOLID	27	SOLUTION	7	SOLUTIONS
13	SOLVE	3	SOLVED	1	SOLVES	13	SOLVING	10	SOME
2	SOMEWHAT	1	SON	3	SONGS	1	SOON	1	SORTED
1	SOUND	1	SOUNDING	1	SOUNDS	8	SOURCE	26	SOURCES
1	SOURCES/AUTHORIT	11	SPACE	1	SPACED	1	SPACES	2	SPAN
1	SPARK	8	SPEAK	6	SPEAKERS	9	SPEAKING	45	SPEAKS
60	SPECIAL	20	SPECIALIST	5	SPECIALISTS	3	SPECIALIZED	1	SPECIALLY
6	SPECIALTY	75	SPECIFIC	1	SPECIFICALLY	2	SPECIFICATIONS	3	SPECIFIED
6	SPECIFIES	1	SPECULATION	6	SPEECH	1	SPEECHES	2	SPELL
8	SPELLING	1	SPEND	9	SPENDS	1	SPENT	1	SPIRIT
1	SPONSORED	2	SPONSORS	1	SPONTANEITY	2	SPONTANEOUS	1	SPONTANEOUSLY
1	SPORTS	3	SPOT	2	SPOTS	2	STABILITY	1	STACK
141	STAFF	5	STAFFING	2	STAFFS	2	STAGE	2	STAGES
2	STAMPS	2	STANCE	1	STANDARD	1	STANDARDIX	16	STANDARDIZED
19	STANDARDS	2	STANDING	10	STANDS	1	STAPLES	1	STAPLING
1	STARES	1	START	3	STARTED	5	STARTING	2	STARTS
11	STATE	5	STATED	11	STATEMENT	26	STATEMENTS	23	STATES
3	STATING	3	STATIONARY	4	STATIONS	4	STATISTICAL	3	STATISTICS
8	STATUS	1	STAY	1	STAYS	1	STEERING	4	STENCIL
3	STENCILS	10	STEP	8	STEPS	1	STEREOTYPED	1	STIFF
1	STIGMATIZE	1	STILTED	5	STIMULATE	23	STIMULATES	2	STIMULATING
3	STIMULI	2	STIMULUS	3	STOPS	9	STORAGE	2	STORE
2	STORED	6	STORES	17	STORIES	1	STORING	23	STORY
2	STORYBOOK	2	STRAIGHTENS	11	STRATEGIES	1	STRATEGY	1	STRAYED

1	STRAYS	1	STRENGTHEN	12	STRENGTHS	2	STRESS	7	STRESSES		
1	STRESSFUL	2	STRICT	2	STRIKE	2	STRINGS	2	STRIPS		
3	STRIVES	5	STRONG	1	STRONGLY	1	STRUCTURAL	12	STRUCTURE		
6	STRUCTURED	17	STRUCTURES	207	STUDENT	12	STUDENT-T	2	STUDENT-TEACHING		
8	STUDENTS	3	STUDIED	50	STUDIES	117	STUDY	2	STUDYING		
1	STUMBLES	1	STYLE	3	SUB	2	SUB-CENTERS	2	SUB-PROBLEM		
4	SUB-PROBLEMS	1	SUBAREAS	103	SUBJECT	1	SUBJECT-MATTER	1	SUBJECT/SKILL		
4	SUBJECTIVE	7	SUBJECTS	1	SUBMIT	5	SUBMITS	1	SUBORDINATE		
1	SUBORDINATION	3	SUBSEQUENT	2	SUBSTANCE	4	SUBSTANTIVE	14	SUBSTITUTE		
5	SUBSTITUTES	2	SUBTOPIC	5	SUBTOPICS	3	SUCCEED	1	SUCCEEDING		
15	SUCCESS	6	SUCCESSFUL	3	SUCCESSFULLY	4	SUCCESSIVE	3	SUCH		
1	SUFFICIENT	2	SUFFICIENTLY	6	SUGGEST	2	SUGGESTING	9	SUGGESTION		
37	SUGGESTIONS	29	SUGGESTS	6	SUITABLE	1	SUMMARIES	3	SUMMARIZE		
5	SUMMARIZES	1	SUMMARIZING	4	SUMMARY	2	SUMMER	1	SUPERFICIAL		
13	SUPERINTENDENT	3	SUPERIOR	1	SUPERORDINATED	2	SUPERVISE	2	SUPERVISED		
91	SUPERVISES	6	SUPERVISING	24	SUPERVISION	8	SUPERVISOR	6	SUPERVISORS		
11	SUPERVISORY	5	SUPPLEMENT	6	SUPPLEMENTARY	32	SUPPLIES	4	SUPPLY		
18	SUPPORT	3	SUPPORTING	5	SUPPORTIVE	7	SUPPORTS	1	SUPPOSES		
1	SUPV	7	SURE	1	SURPRISE	1	SURPRISED	2	SURROUNDINGS		
1	SURROUNDS	6	SURVEY	1	SURVEYING	8	SURVEYS	1	SURVIVAL		
1	SUSBTITUTE	1	SUSPENDS	1	SUSPICIONS	1	SUSSTITUTE	2	SUSTAIN		
1	SUSTAINS	2	SWAP	1	SWELL	3	SWITCHES	2	SYLLABUS		
2	SYMBOL	2	SYMBOLIC	15	SYMBOLS	3	SYMPATHETIC	4	SYMPATHY		
1	SYNONYMS	2	SYNOPSIS	2	SYNTAX	2	SYNTHESIS	2	SYNTHESIZE		
6	SYNTHESIZES	40	SYSTEM	6	SYSTEMATIC	1	SYSTEMATICALLY	2	SYSTEMATIZES		
9	SYSTEMS	1048	T	22	T*S	2	T-AIDE	2	T-AIDES		
1	T-MEETING	1	T-PARENT	11	TABLE	11	TABLES	1	TABULATES		
1	TABULATORY	1	TACTICAL	18	TAKE	1	TAKEN	63	TAKES		
10	TAKING	3	TALENT	2	TALENTED	8	TALENTS	13	TALK		
9	TALKING	34	TALKS	1	TANGIBLE	2	TAP	19	TAPE		
1	TAPE-RECORDING	4	TAPED	12	TAPES	3	TARDINESS	1	TARDY		
1	TARGET	35	TASK	31	TASKS	11	TAUGHT	2	TAX		
11	TEACH	16	TEACHER	3	TEACHER*S	1	TEACHER-EDUCATIO	2	TEACHER-MADE		
2	TEACHER-PREPARED	1	TEACHER-QUESTION	2	TEACHER-TRAINING	11	TEACHERS	22	TEACHES		
174	TEACHING	1	TEACHING-LEARNIN	115	TEAM	1	TEAM-T	7	TEAMS		
2	TEAMWORK	1	TEARS	16	TECHNICAL	1	TECHNICIAN	22	TECHNIQUE		
58	TECHNIQUES	3	TECHNOLOGY	5	TELEPHONE	4	TELEPHONES	1	TELEVISED		
3	TELEVISION	2	TELL	3	TELLING	57	TELLS	1	TEMPER		
1	TEMPERAMENT	1	TEMPERATURE	1	TEMPORARY	4	TEN	1	TENANT		
1	TENDS	2	TENSE	1	TENSION	1	TENSION-RELEASIN	2	TENTATIVE		
1	TENTATIVELY	1	TENURE	11	TERM	4	TERMINAL	65	TERMS		
1	TERRITORIAL	1	TESL	132	TEST	5	TESTED	26	TESTING		
84	TESTS	16	TEXT	4	TEXTBOOK	9	TEXTBOOKS	8	TEXTS		
17	THAN	1	THANK	5	THANKS	113	THAT	1	THAT*S		
358	THE	2	THEATRICS	81	THEIR	16	THEM	2	THEME		
1	THEMES	14	THEMSELVES	5	THEN	2	THEORETICAL	3	THEORIES		
4	THEORY	1	THERAPY	5	THERE	2	THERMOFAX	2	THESIS		
34	THEY	4	THINGS	1	THINK	13	THINKING	1	THINKING/CONCEPT		
6	THINKS	4	THIS	3	THOROUGH	7	THOROUGHLY	11	THOSE		
2	THOUGH	7	THOUGHT	2	THOUGHT-PROVOKIN	2	THOUGHTS	2	THREADS		
1	THREAT	1	THREATENED	3	THREATENING	2	THREATENS	4	THREATS		
3	THREE	1	THRESHOLDS	37	THROUGH	2	THROUGHOUT	3	THRU		
3	TIDY	99	TIME	1	TIMELINESS	1	TIMELY	7	TIMES		
1	TIMES/SEMESTER	1	TIMING	1	TIRES	2	TITLE	2	TITLES		
2545	TO	11	TOGETHER	1	TOILETING	1	TOKENS	2	TOLD		
1	TOLERANCE	1	TOLERANT	6	TOLERATES	8	TONE	14	TOO		
2	TOOL	1	TOOLS	113	TOPIC	1	TOPIC/PROJECT	1	TOPIC/UNIT		
1	TOPICAL	63	TOPICS	22	TOTAL	1	TOUCHES	1	TOUCHING		

2	TOUCHY	3	TOUR	14	TOWARD	5	TOWARDS	1	TOWN
2	TOY	6	TOYS	1	TRACE	2	TRACK	1	TRADITIONAL
1	TRADITIONALLY	1	TRAFFIC	1	TRAIN	1	TRAINED	2	TRAINEE
2	TRAINEES	78	TRAINING	28	TRAINS	1	TRANSACTIONS	1	TRANSCRIBES
1	TRANSCRIPTIONS	3	TRANSCRIPTS	5	TRANSFER	1	TRANSFERRING	1	TRANSFERS
1	TRANSITION	8	TRANSLATES	1	TRANSLATION	2	TRANSMITS	2	TRANSPARENCIES
1	TRANSPARENCY	5	TRANSPORTATION	1	TRANSPORTED	2	TRANSPORTS	1	TRAP
1	TRAVEL	1	TRAY	1	TREAT	5	TREATMENT	10	TREATS
5	TRENDS	3	TRIAL	1	TRICK	3	TRICKS	1	TRICKY
1	TRIED	21	TRIES	23	TRIP	13	TRIPS	3	TRIVIAL
3	TROUBLE	1	TROUBLEMAKER	1	TROUBLES	1	TRUANCY	1	TRUE
3	TRUE-FALSE	3	TRUST	2	TRUSTING	11	TRY	1	TRYING
1	TUBERCULOSIS	2	TURN	1	TURNED	1	TURNING	3	TURNS
13	TUTOR	1	TUTOR-COURSE	1	TUTUREE•S	2	TUTUREES	6	TUTORIAL
25	TUTORING	1	TUTORING•S	15	TUTURS	14	TV	3	TWO
9	TYPE	3	TYPED	43	TYPES	1	TYPESCRIPT	1	TYPEWRITER
4	TYPICAL	3	TYPING	48	T1	46	T2	1	ULTIMATE
1	UMASS-PRODUCED	5	UNABLE	3	UNANSWERED	2	UNAUTHORIZED	1	UNBIASED
3	UNCERTAIN	2	UNCERTAINTIES	4	UNCERTAINTY	1	UNCLEAR	1	UNCONSCIOUS
1	UNCONTROLLED	23	UNDER	1	UNDERCURRENTS	1	UNDERGROUND	1	UNDERMINE
18	UNDERSTAND	51	UNDERSTANDING	18	UNDERSTANDS	4	UNDERSTOOD	1	UNDERTAKEN
2	UNDESIRABLE	1	UNEASINESS	1	UNEASY	1	UNENTHUSIASTICAL	2	UNEXPECTED
2	UNFAIR	4	UNFAMILIAR	2	UNHAPPY	2	UNHURRIED	1	UNIFORM
1	UNIMAGINATIVE	2	UNION	1	UNISON	168	UNIT	1	UNITED
33	UNITS	1	UNITY	1	UNIVERSALITY	1	UNIVERSITIES	3	UNIVERSITY
1	UNLEARNED	4	UNNECESSARY	4	UNOBTRUSIVELY	1	UNORIGINAL	1	UNPLANNED
1	UNPROFESSIONAL	2	UNPUBLISHED	1	UNREASONABLE	1	UNRESPONSIVE	1	UNRUFFLED
2	UNSATISFACTORY	2	UNSOLICITED	1	UNSOLVED	2	UNSTRUCTURED	2	UNSURE
2	UNTIDY	8	UNTIL	6	UNUSUAL	1	UNWARRANTED	2	UNWISELY
1	UOLUNTEERS	96	UP	5	UP-TO-DATE	1	UPCOMING	14	UPON
6	UPSET	4	URGES	1	US	4	USAGE	186	USE
29	USED	2	USEFUL	1	USEFULNESS	1	USELESS	380	USES
18	USING	13	UTILIZATION	4	UTILIZE	1	UTILIZED	12	UTILIZES
3	UTILIZING	4	UTTERANCE	1	V-P	1	VAGUE	4	VALID
8	VALIDITY	9	VALUE	1	VALUE-LADEN	1	VALUE/QUALITY	4	VALUES
1	VANDALISM	1	VARIATIONS	17	VARIES	16	VARIETY	52	VARIOUS
4	VARYING	3	VEHICLE	1	VEHICLES	1	VENDORS	1	VENTILATION)
17	VERBAL	1	VERBALIZATIONS	4	VERBALIZE	1	VERBALIZES	5	VERBALLY
1	VERIFIES	7	VERY	2	VICARIOUS	1	VICINITY	1	VIDEO
3	VIDEOTAPE	12	VIEW	2	VIEWERS	2	VIEWING	2	VIEWPOINT
2	VIEWPOINTS	9	VIEWS	1	VISION	7	VISIT	5	VISITATION
2	VISITING	4	VISITORS	24	VISITS	10	VISUAL	1	VISUALIZE
1	VISUALLY	7	VOCABULARY	7	VOCATIONAL	2	VOCATIONS	23	VOICE
1	VOICING	1	VOLUME	1	VOLUNTARY	4	VOLUNTEER	11	VOLUNTEERS
2	VOTE	1	WAIT	1	WAITING	5	WAITS	1	WALK
4	WALKING	12	WALKS	2	WALL	1	WANDERS	4	WANT
6	WANTS	5	WARM	1	WARMTH	2	WARNING	3	WARNS
1	WARRENTS	2	WAS	1	WASH	1	WASTES	3	WATCH
10	WATCHES	2	WATER	1	WATERS	2	WAVES	17	WAY
30	WAYS	3	WE	1	WEAK	1	WEAKER	4	WEAKNESS
10	WEAKNESSES	1	WEAR	1	WEED	1	WEEK	1	WEEK•S
9	WEEKLY	2	WEEKS	1	WEIGHS	1	WELCOME	4	WELCOMES
1	WELCOMING	5	WELFARE	16	WELL	1	WELL-FORMULATED	1	WELL-READ
1	WERE•T	50	WHAT	131	WHEN	2	WHENEVER	26	WHERE
3	WHERE/WHEN	1	WHEREBY	1	WHEREVER	5	WHETHER	87	WHICH
37	WHILE	2	WHISPERING	1	WHISTLE	82	WHO	6	WHOLE
3	WHOM	4	WHOSE	8	WHY	6	WIDE	1	WILD
1	WILDLY	32	WILL	1	WILLING	3	WILLINGLY	1	WILLINGNESS

1	WIN	3	WISH	2	WISHES	1	WISHING
2	WITHDRAW	1	WITHDRAWING	4	WITHDRAWN	1	WITHHOLDS
36	WITHOUT	1	WITTY	1	WON*T	6	WORD
194	WORK	2	WORK-RELATED	7	WORK-STUDY	1	WORKABLE
2	WORKBOOKS	1	WORKED	27	WORKING	96	WORKS
8	WORKSHOP	11	WORKSHOPS	9	WORLD	2	WORRIES
4	WORTHWHILE	1	WORTHY	1	WOULD	12	WRITE
7	WRITING	33	WRITTEN	2	WRONG	1	WRONGDOING
12	YEAR	1	YEAR*S	1	YEAR-ROUND	1	YEARBOOK
1	YELLOW	2	YELLS	2	YES	1	YESTERDAY*S
1	YOU	1	YOUNG	1	YOUNGER	1	1PRESENTS
1	100	1	15-MINUTES	2	16-MM	2	16MM
2	2COLLECT	1	2COLLECTS	1	3	1	95
1066	WITH						
31	WITHIN						
54	WORDS						
2	WORKBOOK						
1	WORKSHEETS						
1	WORTH						
54	WRITES						
1	YAWNS						
1	YEARS						
2	YET						
1	10-15						
1	2						

APPENDIX D

PROPOSED FACET STRUCTURE

FOR DIMENSIONALIZING TEACHING BEHAVIOR

FACETS OF TEACHING BEHAVIOR

Teacher

A. ACTOR

B. ROLES

C. TARGET GROUP

D. SETTING

E. AREAS OF KNOWLEDGE

F. LEVELS

G. ACTIVITIES

H. FUNCTIONS

I. MODES OF COMMUNICATION

J. MANNERS

K. PROCESSES

Student

A. ACTOR

a_1 Master teacher

a_2 Senior teacher

a_3 Staff teacher

a_4 Associate teacher

a_5 Lecturer

a_6 Intern

a_7 Student teacher

a_8 Teaching assistant

a_9 Instructional aide

B. ROLES

b_1 Classroom manager

b_2 Manager (general managerial skills)

b_3 Administrator

- routine
- records
- schedules
- regulations

b_4 Counselor

- student diagnosis
- counseling

b_5 Discipliner

- punishes
- reprimands
- reproves
- threatens

b_6 Monitor

- observes
- attends
- watches
- proctors
- monitors

b_7 Facilitator

- facilitates
- coordinates
- manipulates

b_8 Tutor

- one-to-one relationship

C. TARGET GROUP

c_1 Large group

c_2 Small group

c_3 Individual student

c_4 Teachers

c_5 Parents

c_6 Community

D. SETTING

d_1 Classroom

d_2 School

d_3 Peer group

d_4 Community

d_5 Family

E. AREAS OF KNOWLEDGE

e_1 Symbolics

e_2 Arts

e_3 Physical sciences

e_4 Biological sciences

F. LEVELS

f_1 Early childhood

f_2 Middle childhood

f_3 Preadolescence

f_4 Adolescence

f_5 Adult

G. ACTIVITIES

g_1 Administration (school governance)

g_2 Material resources (a-v, teaching machines, etc.)

g_3 Language development (alphabet, reading, story)

g_4 Math development

g_5 Arts, crafts

g_6 Recreation (play, sing, dance)

g_7 Group time

g_8 Snack, lunch

g_9 Rest

H. FUNCTIONS

h_1 Structure

plans/prepares
analyzes
researches

acquaints
begins
initiates
introduces
orients
presents

assigns

h_2 Development

defines
informs
relates
states
describes
explains
elaborates
illustrates
emphasizes
generalizes
interprets
clarifies
reinforces
summarizes
stimulates
elicits
checks
reviews
tests

h_3 Evaluation

appraises
assesses
diagnoses
evaluates
opines
judges
tests
grades
scores

I. MODES OF COMMUNICATION

i_1 Application

lecturing
planned repetition
tutoring
discussing
using (teaching machines, etc.)

i_2 Verbal communication

i_3 Nonverbal communication

J. MANNERS

j_1 Positive response

affirms
approves
assists
assures
empathizes
encourages
guides
praises
rewards
supports
reassures

j_2 Negative response

accuses
admonishes
avoids
criticizes
denigrates
disagrees
disapproves
ignores
reproves

j_3 Nonauthoritarian

j_4 Authoritarian

K. PROCESSES

k_1 Motivation

helps
involves
motivates
prescribes
suggests
stimulates

k_2 Interaction

questions
answers
participates
relates
listens
suggests

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