

AN ABSTRACT OF THE THESIS OF

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Title: A STUDY OF CLASSROOM BEHAVIORS CONTRASTING
THE BEHAVIOR OF CHILDREN WITH AUDITORY AND
VISUAL SCREENING ABILITY WITH THE BEHAVIOR
OF CHILDREN WITH POOR SCREENING ABILITY IN
GRADES ONE THROUGH SIX

Abstract approved: *Redacted for Privacy*
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The purpose of this study was to compare classroom behaviors of students whose tests indicate high average or better figure-ground discrimination skills with those learners whose figure-ground discrimination skills were rated as low average or less. Auditory and/or visual problem and non-problem groups were formed on the basis of scores on the Goldman, Fristoe, Woodcock Test of Auditory Discrimination and the Children's Embedded Figures Test. Behaviors were rated on the Devereux Elementary School Behavior Rating Scale.

One hundred ninety-six students were tested in this study. Ten teachers rated the classroom learning behaviors of each student in their respective classrooms.

Differences between problem and non-problem groups in the

auditory mode, the visual mode and a combined auditory and visual mode group were established by appropriate grouping of the raw data and the use of a "t-like" test. This procedure was also used to compare problem groups in the traditional classroom and problem groups in the open classroom.

Nine hypotheses were formed to test the significant differences between the problem and the non-problem groups at the .05 level or higher level of significance. Samples which were considered included each individual grade level, one through six, the total sample combining grades one through six as well as a comparison of problem groups in the open and traditional classrooms. Supplementary data was provided which compared problem and non-problem groups on the primary level (grades 1, 2, 3), the intermediate level (grades 4, 5, 6), in the traditional classrooms (grades 1, 5, 6) and in the open classrooms (grades 2, 3, 4).

A number of significant differences were found and the following trends were noted:

- 1) The ability to screen visually greatly enhanced the acquisition of comprehension learning behaviors at grade levels 3, 4, 5 and 6.
- 2) Students who had visual screening problems relied on external factors for assistance significantly more often (.05 level of significance) than did the non-problem group.

3) Intermediate level students who had auditory screening problems were significantly more often (.05 level of significance) a part of classroom disturbance and of disrespect and defiance than the non-problem group.

Results and conclusions of this study clearly indicate a significant relationship between the screening ability of students and the classroom behaviors observed by teachers.

A Study of Classroom Behaviors Contrasting the Behavior
of Children With Auditory and Visual Screening
Ability With the Behavior of Children With
Poor Screening Ability in Grades One
Through Six

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A STUDY OF CLASSROOM BEHAVIORS CONTRASTING THE BEHAVIOR OF CHILDREN WITH AUDITORY AND VISUAL SCREENING ABILITY WITH THE BEHAVIOR OF CHILDREN WITH POOR SCREENING ABILITY IN GRADES ONE THROUGH SIX

Chapter I

INTRODUCTION

The teacher faces the responsibility of reporting on the behavior of the students in his or her classroom. The report may be used in conferencing with parents, requesting referral for a special educational process, or in making a behavioral evaluation for the year. To accomplish this the teacher must be aware of how the child learns and must be able to communicate to others about the student's behaviors. In so far as they reflect the general attitudes and motivations of learning and achievement, these classroom behaviors may be specified as learning behaviors.

It is assumed that the teacher is vitally concerned with the learning behaviors exhibited by each student. The student, of apparently normal intelligence who may be quite capable in some areas of learning but appears absolutely incapable of learning specific skills in another area, has long puzzled the professional educator.

This child who has learning problems but no obvious specific disability, has been the target of a variety of descriptive labels.

Early studies of these children were often of a neurological nature, therefore, descriptors such as "brain-injured" and "neurologically disabled" were commonly used. Neurologists have utilized terms such as minimal cerebral dysfunction, neurological impairment and minimal brain damage. Behaviorally these children have been described as hyperactive, emotionally labile, perceptually disordered, impulsive, distractible, and perseverative. Birch cites two specific points of objection to the confusion created by these labels:

- 1) Evidence that children exhibiting the behavioral pattern described, do, in fact have damage to the brain is poor, and
- 2) many children with known and independently verified brain damage (i. e. non-behavioral neurologic or anatomic evidence) do not exhibit the patterns of behavior presumable characteristic of 'brain damage' (Birch, 1969, p. 4).

In the process of dealing with these disagreements the focus swung from etiology to behavior. The term "learning disability" came into use and by the early 1960's appeared regularly in the literature (McCarthy and McCarthy, 1969). Although the controversy over terms is yet in existence many authorities use either the behavioral term 'learning disability' or a neurological term that indicates non-functioning rather than damage, often 'minimal cerebral dysfunction.

This study will contain the behavioral terminology since this is the focus of concern in the classroom. However, because of varied uses in the literature it should be understood that the

behavioral term and neurological term may be used interchangeably in direct quotations or in direct reference to such quotations.

Authorities such as Clements, Kirk, Bateman, National Advisory Committee on Handicapped Children, Kephart and Barsch have attempted definitive statements of a learning disability. Some of the common factors they discuss are:

- 1) the child is of near average, average or above average intelligence.
- 2) behavioral abnormalities range from mild to severe.
- 3) there is a specific significant deficit in one or more of the essential learning processes which may manifest itself in less than 'normal' ability to listen, think, speak, read, write, spell or to do mathematical calculations.
- 4) behavioral terms are usually quite descriptive as opposed to focusing on specific observable behaviors. The list of behaviors generally include: hyperactive, emotionally unpredictable, perceptually disordered, impulsive, distractible and perseverative.

Rubin and Hebb agree that figure-ground perception is a primitive or basic part of the structuring of the visual experience (Bartley, 1958). Solly (1960) indicates a similar structuring in the auditory figure-ground response or the learning to perceive. These responses seem to be reflected in the individual's behavior.

Purpose of the Study

The purpose of this study was to compare classroom behaviors of students whose tests indicate high average or better figure-ground

discrimination skills with those learners whose figure-ground discrimination skills were rated as low average or less. Comparisons were made in the auditory and the visual modes as tested on the Goldman, Fristoe, Woodcock Test of Auditory Discrimination (1970) and the Children's Embedded Figures Test (1963).

Need for the Study

The writings of clinical authorities in the field were used to identify specific behaviors exhibited by students known to lack figure-ground perception of screening ability, auditorially or visually. While most educators could describe what is meant by clinical descriptions of behavior, it is quite another task, for example, to list observable classroom behaviors of an impulsive, distractible or a perseverative child.

A suggested approach is one in which teachers would observe classroom behaviors that seem to impede the learning of students. An examination must also be made of the specific behaviors that authorities would agree upon as typical of learning disabled children. More precisely, there is a need to look at behaviors typical of children who have a specific learning disability, not at the entire range of dysfunctions.

Two of the learning modalities or ways of learning that are most important in today's schools are those of audition and vision.

It seems appropriate to explore central processing dysfunctions within these areas. The process of figure-ground selection is an important function in both the auditory and visual mode. Chalfant and Scheffelin have reviewed more than 3,000 references in their research in the field. Following this review they note a lack of "detailed and comprehensive descriptions of the behavioral responses to stimuli which are characteristic of auditory dysfunction."

Chalfant and Scheffelin continue in reference to visual central process dysfunction:

If gross indicators of possible central visual disorders can be identified by simple behavioral tests, it may be possible to develop screening techniques for use by school personnel (Chalfant and Scheffelin, 1969, p. 137).

Figure-ground selection is listed by these authors as an essential area of exploration in both the visual and auditory modes.

The study involved a translation of these behavioral terms as they pertain to the inability of some children to auditorially or visually screen stimuli extraneous to the task at hand.

Specific behaviors were examined by the responses to the questions of the Devereux Elementary School Behavior Rating Scale.

Groupings as to poor or better than average auditory discrimination were done on the basis of score on the Goldman, Fristoe, Woodcock Test of Auditory Discrimination. Visual discrimination ability groupings were done on the basis of scores on the Children's

Embedded Figures Test. Of special interest were instances in which particular behaviors were found to be exhibited significantly more or significantly less by students with poor auditory and/or visual screening ability than by students whose ability was average or better.

Where a particular behavior pattern is exhibited the inference is that a screening problem exists (in a similar sampling of the population).

Significance of the Study

The ability to identify a screening problem because of a particular behavior pattern will be helpful in the field of education because:

- 1) The observation and recognition (or rejection) of specific behaviors exhibited by an individual child will assist the classroom teacher in better understanding the child and his learning needs.
- 2) Clarification is needed for the communication of information about that individual to any specialist who may become involved in the case (medical, speech pathologist, etc.).
- 3) In the absence of immediate, confirmatory diagnosis, the classroom teacher may alter input to the child and her immediate environment using the behavioral screening results as an aid to educational planning aimed at enhancing

the development of the child.

- 4) The use of the behavioral rating will assist in periodic evaluation of the child and his progress from the perspective of the individual's personal growth as well as movement toward the expectations of the peer group's development.
- 5) It will assist in determination of the most appropriate age for remediation efforts if the phenomenon appears to be developmental.

Whether the dysfunction exhibited by the individual child occurs as a result of brain damage or some sort of developmental arrest or delay is of little consequence to the educator. The educator assumes that the consequences of that dysfunction are of such permanence that the child must learn to cope with the environment in terms of the dysfunction. It is most advantageous to the child for the educator to look for observable behaviors and to evaluate the point of breakdown of learning abilities in light of these behaviors.

Chalfant and Scheffelin indicate that in an education plan the observations at the point of learning failure occur immediately prior to a rearrangement of procedures and materials that are different to those of the child's experience. As to the responsibility for identifying these children and locating the points of learning failure, these authors comment:

In order to identify more clearly the children who have central processing dysfunctions, it will be necessary to identify the specific observable behaviors or clusters of behaviors which are symptomatic of these dysfunctions. . . . When specified behaviors or behavioral syndromes have been identified, it will be possible to develop check-lists and other recording systems for use by classroom teachers (Chalfant and Scheffelin, 1969, p. 137).

This study examines a pattern of behaviors specific to children who lack the ability to effectively screen extraneous stimuli. These behaviors will be examined in the context of the Devereux Elementary School Behavior Rating Scale (DESB).

Definitions

Visual figure-ground organization:

Consists of figures separated from their back-grounds. This is referred to as the figure-ground principle, and it is the simplest and most primitive form of perceptual organization (Sage, 1971, p. 153).

Auditory figure-ground:

Auditory figure-ground is similar to visual figure-ground in that we are able to perceive one specific tonal quality that exists within complex sounds (Sage, 1971, p. 190).

Perception:

The activity of mediating processes which integrate present input with past input. It is one of the intervening variables between a stimulus and a response. Perception usually demands a sequence of stimulation; it is influenced by many factors, including learning, and its relation to stimulating events is variable.

Special definitions: This writing is not a discussion of classroom techniques of interaction between teacher and student. Two terms, open classroom and traditional classroom are used only to define the physical space involved. Thus, the open classroom indicates

a large space used by several teachers and their students, collectively: 'classroom instruction' being done by whatever method agreed upon.

The traditional classroom indicates a normal size classroom occupied by one teacher (and aides, interns and student teachers so assigned) and the students designated by the administration as that teacher's responsibility.

The primary classroom designates grade levels 1, 2 and 3.

The intermediate classroom designates grade levels 4, 5 and 6.

Instruments of Measurement

The Goldman, Fristoe, Woodcock Test of Auditory Discrimination, Noise Subtest was used to obtain an index of an individual's ability to discriminate speech sounds under noisy conditions.

The Children's Embedded Figures Test was used to determine the individual's ability to locate an embedded figure.

The Devereux Elementary School Behavior Rating Scale was used to record observable behaviors of students in the classroom.

Limitations

- 1) Though the school population used contained a cross-section of students with varied socio-economic background, conducting the study in a single location may limit the findings for the general population.

- 2) Students in the samples were members of regular classes; findings should be considered in light of this population rather than in terms of 'special education' classes.
- 3) Students selected by the testing process for grouping have not necessarily distributed themselves in a statistically convenient numerical pattern. There were a number of grade level groupings in which the population sample was so small as to be of little value in drawing conclusions for that particular grouping.
- 4) As required by HEW all subjects were volunteers; approximately ten (10) students declined to participate as a result of informed consent (Appendix A, p. 88).

Summary

Indicated in this chapter is the need for identifying behaviors typical of children who have poor auditory and/or visual figure-ground perception and to examine them in terms of whether those behaviors impede the learning process.

Literature related to this problem will be the focus of the following chapter.

Chapter II

REVIEW OF THE LITERATURE

The review of literature will encompass two related aspects of the study: 1) the recognition and description of the discrimination of figure-ground; and 2) the descriptions of behaviors, believed by clinicians to be typical of some portion of the population whose perceptual disorder is described as poor figure-ground discrimination. In addition it is the intention to review other writings and their implications for research appropriate to this study.

Recognition and Description of the Discrimination of Figure-ground Perception

Visual Discrimination

Edgar Rubin, a Danish psychologist is generally credited with the first description of the phenomenon of figure-ground. His research on this phenomenon started in 1912 and was first published in 1914. Zusne describes Rubin's analysis of visual perception as being "in terms of its two basic components, figure and ground. Figure is that which one pays attention to, which has a 'thingness' about it, while ground is that formless, less conspicuous extent upon which the figure is seen" (Zusne, 1970, p. 10). Rubin's description of figure-ground, his phenomenological analysis of figure-ground relationships, the role of attention in the perception of ambiguous,

figure-ground reversal pictures were described by Zusne as a "direct contribution to the raw material of which Gestalt psychology is made" (Zusne, 1970, p. 10).

Psychological Base. It is tempting at this point to digress to a more detailed historical discussion involving this school of thought. However, it is sufficient to say that a brief (and thus necessarily sketchy) summary of Gestalt evolution to more contemporary thought, as described by Zusne will be used.

Although it accepted experimentation, the Gestalt school was phenomenologically based. As one might thus expect, Gestaltists were somewhat ambiguous in their descriptions of such precise functions as form perception. Gestalt psychologists spoke of 'figural goodness'--the circle, square, equilateral triangle and other regular, symmetrical figures; but they were never able to find the common denominator of 'figural goodness'.

Pressures of World War II gave a strong impetus to the study of form perception--particularly to psychologists in the United States. During this period of time less work was done from the Gestalt viewpoint; the study of form perception became a part of general psychology and lost its specific "school" label. Quantified experimental tests of Gestalt concepts have resulted in the information theories and

thus given impetus to the attempt of quantification of visual form.

As Rock points out "to explain how a contour is perceived is not to explain why that contour yields a particular shape depending upon which region adjacent to it becomes 'figure' and, why the shapes thereby achieved are so different from one another for one and the same contour . . ." (Rock, 1975, p. 259).

Physiological Base. Dember notes that "figure formation is a process that depends on some rather complex relations among stimulus and receptor variables" (Dember, 1960, p. 145). He goes on to indicate that figure formation and stability are closely related to stimulus change and the "emergence of a figure" is a process that is not instantaneous but one that takes "time to develop. "

Rock argues the necessity of explaining how

. . . even a figure not ordinarily considered to be ambiguous, is . . . ambiguous in that its contour could be organized in such a way that the central region would appear as ground (i. e. a hole) and the surrounding region as figure (Rock, 1975, p. 290).

Rock offers an explanation of the process of figure-ground discrimination. An object is perceived and stimulus information is flashed to the central nervous system; the image and alternates are 'tried' and the cognitive decision is made as to figure and ground. Admittedly this decision may be made somewhat on the basis of

Rubin's and the Gestaltists' theory of surroundedness. Rock theorizes that the cognitive decision is made on the basis of past experiences in which information about distance, difference in color, etc. is integrated. He continues:

The decision of what is to be 'figure' is described (neither consciously nor verbally); the region described becomes the figure. This is why the same contour can lead to different shapes depending upon the region to which it belongs; and this is why only one figure at a time can be perceived in such ambiguous patterns (can be switched rapidly, though). That black is favoured (as figure) may simply be a set developed on the basis of past experience with written and printed material (Rock, 1975, p. 276).

Principles which affect figure-ground determination are identified as surroundedness, relative size, symmetry and differences in color or reflectance.

While further discussion by Zusne indicates a general theoretical agreement that the ability to see figure on ground appears to be innate, he states that the data indicates that:

. . . learning determines which portion of the visual field will be seen as figure and which as ground, especially when the stimulus characteristic of both figure and ground are such that a labile configuration results (Zusne, 1970, p. 355).

Developmental Base. Although the effect of motivational factors in figure-ground perception has been investigated by a number of reputable investigators (R. Schafer and G. Murphy in 1943,

C. M. Solly and G. Murphy in 1960, Jerome Bruner and Cecile Goodman, 1947) the results are inconclusive. This is not only because of varied results but because of suspected ineffective rewards and punishments used on the subjects.

Zusne explains these results--the decrease in the effect of punishment and reward upon perception--in terms of such developmental theorists as Piaget:

. . . namely that with increasing age the dominance of factors associated with the stimulus wanes while the influence of cognitive factors increases.

Developmental changes in the ability to alternate percepts in a labile figure-ground field are probably due to these same processes (Zusne, 1970, p. 356).

According to developmental theories, then, the choice of what is figure, is made as a result of influence of cognitive factors or of 'learning'. One must assume then that without this kind of learning or cognition the individual's figure-ground perception skills are necessarily ambiguous; (s)he cannot decide, or decides more slowly which is figure and which is ground.

Else Frenkel-Brunswik approaches the problem from the point of view of cognitive ambiguity. She states that ". . . ambiguity of cognitive responses must be seen as a reflection of the uncertainties existing in the environment. . . ." (Beardslee et al., 1958, p. 672). She further specifies:

Academic research on ambiguity and on probability of adjustment has discovered a number of important principles by which cognitive responses are linked to characteristics of stimulus-configurations and stimulus-combinations in the environment, such as the relative size of the figure vs. ground area (Beardslee et al., 1958, p. 674).

Bruner (1958) argues that if intolerance of ambiguity is a lack of intelligence "it would seem to be a rather specific aspect of intelligence that may be involved." Specifically he wonders if those "who exhibit rigidity in the emotional and social field are generally less likely to shift back and forth between alternative interpretations of an ambiguous perceptual configuration" (Beardslee et al., 1958, p. 689).

Auditory Discrimination

To further understand the learner's situation, Kephart indicates that "many of the problems of form-perception and of figure-ground relationships, which have been investigated over a number of years in the field of visual perception, exist also in other areas" (Kephart, 1960, p. 235).

Developmental Base. By way of explanation of the auditory area Barsch details the necessity of attaining auditory screening (figure-ground) capability):

To acquire value to the organism, sound must be labeled in some manner. In a myriad of sounds the infant must select and ignore in a constant stream of decision. He cannot

manage every sound--although all sounds in his surround may enter. He must economically build two space fields for surround - a foreground and a background (Barsch, 1968, p. 232).

In a continuing discussion Barsch explains that the individual's attention will be determined by these two fields, that he may attend to only one field at a time. If the foreground receives attention the background becomes secondary and vice versa. Barsch sees these fields as terrains, each of which the organism must learn to operate upon. Efficiency will depend upon the ability to move "facilely from one ground to another."

According to the Barsch theory the child "tunes in" to the sounds in his environment and remains alert to them until (s)he can pick up or focus on a sound to act upon. Barsch pictures the confusion:

In a multiple auditory surround the sounds do not travel in nice, neat serial rows. They scramble in a bombardment profusion, each at its own rate of speed and each from its own directional source converging upon a mobile organism (Barsch, 1968, p. 233).

Physiological. Joan Wilentz in her comments on various kinds of feedback between the brain and the ear itself gives a more physiological explanation of the auditory figure-ground phenomenon:

As for the other kind of feedback, the control over what your ears are picking up elsewhere, as opposed to the sounds you yourself make, the auditory system again excels. It appears now that paralleling auditory fibers at every stage of ascent in the brain (there) are descending tracts, fibers that can modify incoming activity (Wilentz, 1968, p. 184).

These fibers known as the olivocochlear bundle or tract of Rasmussen form an efferent system which arises in the vicinity of the superior olive in the medulla and terminates on the cochlea. This, as Wilentz says, ". . . may be the reason we have such sophisticated control over sound. We can inhibit the noise at a cocktail party . . . to pay attention to what we want to hear" (Wilentz, 1968, p. 184).

Behavioral Implications

The advantages of good screening or discrimination ability in both the auditory and visual modes must be obvious to even the most casual observer. The consequences of poor abilities to screen in these modes are much more subtle to attempt to assess. Richard Flower indicates that "many of the tasks that must be mastered before a child can read successfully rely heavily upon auditory processes (Smith, 1968, p. 24). Anne Morency after carefully defining auditory discrimination as the ability "to differentiate between closely related speech sound," seems adamant as to its importance:

Auditory discrimination (and auditory memory) . . . are referred to as perceptual qualities and are regarded as a part of the sensory aural input pathway that contributes as a foundation for the conceptual level of learning and not to sensation plus meaning as is sometimes found in other contexts (Smith, 1968, p. 18).

Frostig reports that Piaget and his followers referred to figure-ground perception as decentration. They found two decentration

tasks, that of reversing figure and ground and finding hidden figures, "were more difficult for slow readers than for normal readers." In her clinical observations Frostig indicates that children with disabilities in visual figure ground perception:

. . . often have difficulty in scanning, finding their place on the page, tend to skip words and lines and leave out or substitute letters in words, locating specific information in reference books such as dictionaries or telephone directories (Smith, 1968, p. 28).

Mykelbust and Johnson express their concern about children who "can see but who cannot differentiate, interpret, or remember words." They comment further:

Some fail to note internal detail and confuse words such as beg and bog; others cannot see the general configurations of words such as ship and snip. In learning to read, it is necessary to assimilate both the details and the general configuration, as well as the relation of the parts to the whole (Mykelbust and Johnson, 1959, p. 152).

These authors also discuss, in considerable detail, those children with severe auditory receptive disabilities. Some behaviors they have observed are listed here:

Since these children do not understand sounds, they often do not know which ones to ignore and thus overreact to extraneous noise. As they learn to associate sounds with experience, their responses become more suitable . . . until they are capable of coping with environmental sounds, they should not be placed in an overwhelming auditory world. It causes distraction and interferes with learning . . . they have considerable difficulty in listening, they fatigue easily . . . at times they become so frustrated and fatigued that they withdraw from the situation by covering their ears (Mykelbust and Johnson, 1959, p. 68).

Mykelbust and Johnson point out the bewilderment of parents when such a child responds inconsistently to sound--"they find it hard to discipline because of their uncertainty as to whether the child actually heard and understood."

Cruickshank adds to our list of clinical observations which contains implications for classroom behaviors. He says:

. . . these children may be extremely quiet and withdrawn . . . using the technique of withdrawal and retreat into seeming shyness as their method of control. They escape in this way from their perceptual problems . . . one child may strike out against his world in an uncontrolled and random fashion, another may find security from the confusion . . . by retreat, withdrawal and quiet (behavior) (Cruickshank, 1967, p. 48).

Cruickshank also comments on the seeming necessity for the child with poor visual screening abilities to touch the person to whom he speaks: he feels the child is trying to separate the person or figure from the background.

Sylvia Richardson seems to summarize rather succinctly the real difficulties facing children with poor auditory and visual screening ability:

Such a variety of symptoms and signs cannot be ascribed to the direct effect of brain 'injury', but abnormality of the brain in such patients may have contributed to the behavior abnormalities by damaging the infant's ability to adjust to the conditions in which he finds himself (Kirk et al., p. 35).

With the exception of accidental injury, it would appear these screening problems are of a developmental nature; this will be of concern

in studies involving any type of remediation effect.

Related Studies

Muriel Beadle (1972) has presented an extensive review of studies concerning the way children learn, from birth to age five. One of the most pertinent studies she reviews is the work of Herman A. Witkin.

"The leading exponent of the theory that perception and personality are very closely related," Beadle notes that Witkin and his associates have, since 1942, studied the ways in which individuals with different personality traits perceive the same thing. A number of tests have resulted from this work; among them the Embedded Figures Test.

Some of Witkin's most interesting observations come from his work with children. Beadle summarizes:

. . . in general children are far more influenced by the structure of the surrounding field than adults are. Around age ten, however, a sudden and dramatic change occurs, and between the ages of ten and thirteen children develop virtually their full adult capacity for separating an item from its context (if they are going to have it). Witkin suggests, therefore, that field-dependence is a developmental first step, and that its persistence into adult life indicates an arrest in progress toward emotional maturity.

Many of the personality traits typical of the field dependent adult are echoed in the behavior of young children--submission to authority, for example, or difficulty in controlling impulses (Beadle, 1972, p. 151).

Much of the more recent research as described in Dissertation Abstracts appears to reflect a lack of attention to the problems of the time necessary to allow internalization and integration in order to "re-program" responses in light of the new or improved perceptual skills that have been gained.

Typical of this situation is the research by Brooks and Clarence (1975). Their treatment of an experimental group of first graders (whose visual figure-ground perception skills had been tested and scored "normal") consisted of training in these skills for 15 minutes per day for three months. The post test for word recognition as well as an assessment of visual figure-ground perceptual skills was given immediately following this three-month period. Not surprising was the result that low readers in the experimental or treatment group had significantly higher (.05) scores than the control group in visual figure-ground skills but "no similar higher gain in word recognition was found." The researchers recognized that the time period involved was inadequate.

Chalfant and Scheffelin in their review of the research regarding children with central processing dysfunctions emphasized the need for "improvement of diagnostic procedures for disorders of auditory processing" and to "develop more effective procedures for the screening and identification of visual processing dysfunctions." Among the specific dysfunctions they list are visual figure-ground

discrimination and auditory figure-ground selection (discrimination).

They also point out:

. . . central processing is not accessible for direct observations and must necessarily be inferred from behaviors which are accessible to observation (Chalfant and Scheffelin, 1969, p. 138).

Clinicians aware of auditory and visual screening problems have listed typical acting out behaviors which appear to be related to classroom behaviors and learning as summarized by Spivack and Swift (1967). Such a list could include:

AUTHORITY:	CLASSROOM BEHAVIOR:	OBSERVATION:
Morency Frostig	Comprehension External Reliance	. . . part of the sensory aural input pathway that contributes as a foundation for the conceptual level of learning . . . have difficulty in scanning tend to skip words, etc.
Mykelbust and Johnson	Impatience Inattention- Withdrawal	. . . overreact to extraneous noise, difficulty in listening, fatigue easily, withdraw by covering their ears
Cruickshank	Withdrawal External Blame Classroom Disturbance Needs Closeness to Teacher	. . . may be extremely quiet and withdrawn, may strike out in an uncontrollable and random fashion, may need to touch the person to whom he speaks.
Witkin	Classroom Disturbance Disrespect- Defiance	. . . may completely submit to authority or have difficulty in controlling impulses

Educators may assume the stance of little concern about whether or not the child has central processing dysfunction. The educator instead focuses on behavior in the classroom, attempting to revise the situation for the individual child. Chalfant and Scheffelin encourage the educator to continue these efforts but to engage in interdisciplinary efforts with the medical profession in order to find the link between organic pathology and treatment (of learning problems). They further indicate:

. . . it will be necessary to identify the specific observable behaviors or clusters of behaviors which are symptomatic of these dysfunctions. These observable behaviors should eventually include the anatomical, neurological and physiological symptoms as well as the psychological and EDUCATIONAL symptoms related to difficulty in learning When specific behaviors or behavioral syndromes have been identified, it will be possible to develop checklists and other recording systems for use by classroom teachers (Chalfant and Scheffelin, 1969, p. 138).

Therefore the impetus of the study was to identify observable behaviors related to learning difficulties of those students identified as having poor visual and/or poor auditory figure-ground perceptual skills.

Summary

The review of the literature has established the figure-ground phenomenon as one of the skills involved in basic auditory and visual perception. Except for the possibility of accidental injury there

seems to be general agreement that figure-ground is a developmental phenomenon but one which can be improved with training. Figure-ground perception is believed to be an important part of cognitive development, forming, as some authorities state, the foundation to conceptual development. Other psychologists see the figure-ground phenomenon as significantly affecting the development of personality.

Researchers indicate there is a need to become aware those educational symptoms which relate to learning, pointing out that we need to know the specific behaviors typical of children with central processing dysfunctions. Further there is a need to specify, when possible, to which processing dysfunction these behaviors are typical.

This study is designed to compare learning behaviors of learners whose tests indicate high average or better figure-ground discrimination skills with those learners whose figure-ground discrimination skills were rated as low average or less. Comparisons will be made in the auditory and the visual modes.

In the next chapter there will be identification of tests and procedures used to organize the study as well as the method of analysis of the data obtained.

Chapter III

METHODS AND PROCEDURES

Locale

The participants in this study were members of the staff and student body at Lincoln School, an elementary school in District 509J, Corvallis, Oregon. Information supplied by the principal indicated that 15%-20% of the students came from homes where the parents are professional workers, doctors, dentists, educators, etc. About 15% of the students were on the school's free lunch program. The intermediate 65%-70% was comprised of 'blue and white collar' workers, farmers, business people, etc. Lincoln School is located on the fringe of the city so that among the population there are students from homes located in the city, in the surrounding suburban area and from farms well outside the city.

Design of the Study

Subject Eligibility

All students who had been at Lincoln School for at least four weeks by April 30, 1975 were considered eligible to become subjects. This amount of time was established in order to satisfy the Devereux Elementary School Behavior Scale (DESB) rating procedures.

Teacher Eligibility

All teachers were required to have been working with the students (prospective subjects) for a period of at least four weeks in order to be able to rate them on the DESB.

Participants

A summary of numbers of participants is presented in Table

3.1. Grade levels are also noted.

Table 3.1 Numbers of Participants by Grade Level.

Grade Level	Number of Teachers	Number of Subjects
First	2	43
Second	1	21
Third	1	27
Fourth	2	38
Fifth	2	31
Sixth	2	36
TOTAL	10	196

Assumptions

Maturation Levels. Since testing and teacher ratings were done within a period of eight weeks it is assumed this small time differential did not significantly affect maturation level within classes.

Expectations for Learning. Students who wore glasses or hearing-aids as a matter of course during the school day were asked to wear them during the testing process. The assumption was that sufficient correction had been made and those students operated under similar expectations for learning that the teacher held for other students.

Teacher Presence. Most teachers had been with their students for several months when the ratings were done. The exception was in the second grade where the teacher had only been in that classroom for about six weeks. Since this meets the minimal time requirement as stated in the Devereux, it is assumed that this teacher's input is as valid as that of each of the other teachers.

Conditions

Parental Information. Parents of each child at Lincoln School (an elementary school in Corvallis, Oregon) were notified by mail of the study. Procedures were outlined and parents who did not wish their child included were asked to so indicate. Questions were invited and the letter was signed by the researcher and the school principal. Some parents responded with questions but none of them denied permission for their child to be a part of the study (Appendix A).

School District Requirements. A research request was filed with the Corvallis District Administration Office. Permission for the

study was granted with the following conditions: 1) Teachers who participated would do so on a voluntary basis. 2) A minimum of classroom disruption would occur; careful scheduling was strongly encouraged. 3) Parents would be notified by mail of the study and a sufficient amount of time allowed for them to indicate disapproval of their child's participation in the study. 4) Teachers would have access to test information at the end of the study. 5) Parents of children whose screening skills were scored as poor would be notified.

Requirements of the Office of Health, Education and Welfare.

Each participant in the study was read a statement which indicated what the study was about and how the information obtained was to be used. Participation was offered as a choice. These requirements are administered by the Oregon State University Committee for the Protection of Human Subjects (Appendix A).

New Students. Students present at Lincoln School less than four weeks before the teacher scoring period were not included in the study.

Instruments

Goldman-Fristoe-Woodcock Test of Auditory Discrimination.

The GFW (1970) is published and distributed by the American Guidance Services, Incorporated (see Appendix B). Separate norms are provided for each subtest from ages 3 years, 8 months to 80⁺ years.

The GFW consists of three sections: training, quiet subtest and the noise subtest. The entire test, including the training section is administered by use of a tape recording and a series of plates which contain four simple line drawings of familiar objects. The subject hears a word, points to the proper drawing and the examiner records his response (see Appendix B).

All three sections were administered to each subject although only the noise subtest scores were utilized in this study. Since there are separate norms for each subtest this is an appropriate use of the data.

Pertinent statistical data is presented below:

The test-retest correlation as reported on the noise subtest was .81. The time span between these tests for this type of reliability was two weeks.

The internal consistency reliabilities were calculated by the split-half and corrected by the Spearman-Brown formula. The internal-consistency co-efficient obtained for the noise subtest was .68.

The discussion of validity includes comments on content validity, concurrent validity and construct validity. In the matter of content validity the authors compare the task in the GFW to the real-life task:

The GFW task requires the subject to make fine speech-sound discriminations in the context of familiar language in a controlled-test situation closely duplicating the speech-sound discrimination task in real life (Goldman et al. , 1970, p. 20.

Concurrent validity of this instrument has been measured against expert clinical judgment. Eighteen (18) subjects were judged as "poor discriminators" and twelve (12) subjects were judged as "good discriminators" by expert clinicians. A point-biserial correlation coefficient of .72 was obtained between clinical judgement and T-scores on the noise subtest. Evidence of construct validity is offered in three types of predictable functions:

- 1) Subjects errors decrease with age until about age 25. From age 25 to about age 40 performance stabilizes; at this point errors gradually increase with age.
- 2) Relative levels of performance among selected groups of subjects is predictable.
- 3) Correlations with the GFW and tests other than auditory discrimination are low.

In addition this instrument was chosen because of its several strengths, some of which are considered to be unique (Buros, 1972).

The GFW:

- a) has an extraordinary age range which is well normed;
- b) requires a precise pointing response rather than a verbal response;
- c) offers more than two possible choices for each item;
- d) requires pretraining to introduce vocabulary;
- e) may be administered using good quality monaural equipment.

Specific equipment used in this study is listed in Appendix B.

Children's Embedded Figures Test. The CEFT was developed by Stephen A. Karp and Norma Konstadt in 1963. It is published and distributed by Consulting Psychologists Press, Incorporated.

Pertinent statistical data is presented below.

a) Reliability:

Internal consistency reliability coefficient:

ages 7-8	.87
ages 9-10	.88
ages 11-12	.87

Test-retest conditions

ages 5-6	.87
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b) Validity:

Validity coefficients CEFT and EFT

<u>Age</u>	<u>N</u>	<u>CEFT, EFT</u>
9-10	40	.71
11-12	40	.85

The drop at 9-10 age level reflects lowered reliability of EFT at age 9 (.75 as compared with .9 at age 11).

In addition this instrument was chosen because:

- 1) Age range is appropriate to the sample in the study (5-12 years).
- 2) Responses required are not verbal.

- 3) Responses require only identification of a simple figure embedded in colorful drawings; thus it holds the subjects' attention but does not require a verbal description or placement of figure on another part of the plate.

Devereux Elementary School Behavior Rating Scale. The DESB was developed by George Spivack and Marshall Swift in 1967. It is published and distributed by the Devereux Foundation.

As development of this scale began, 24 teachers in regular public elementary school classes, 16 teachers of special public elementary school classes and 32 teachers of various resident treatment units met weekly. These teachers were encouraged by the authors to discuss those classroom behaviors which in their experience they would judge to interfere with student learning or which, they felt, from their experience, were related to academic achievement.

Behaviors were then specified. They covered a full range of behaviors existing in both special and regular classrooms--maladaptive behavior as well as adaptive behavior. Items referred to behaviors readily observable by any individual working with children in a classroom situation.

Items were constructed by the teachers in various groups but were refined by the group as a whole. Ambiguous items or debatable ones were either improved or omitted. When field testing began short training periods were held for teachers who were raters.

The authors summarize their research:

Behaviors were selected out of teacher conferences, scale items constructed, ratings made by teachers, factor analyses performed, and behaviors related to age, sex, IQ, academic achievement, clinical diagnosis, academic subject, grade level, sex of teacher-rater, age and educational level of parents, sibling status, and race of child. Norms and test-retest data were obtained and comparisons were made between academic achievers and non-achievers, and between "normal" and "special" classes. In all, 147 teachers made 1719 ratings on a total of 1546 children (Spivack and Swift, MICRO FISH - Ed 012-545, 1967).

Test-retest correlations of the ratings of individual teachers is reported to be .87.

In addition, this instrument was chosen for use in this study because:

- 1) Items to be rated are specific, observable behaviors which are typical of classroom behaviors, in grades 1-6.
- 2) Items were especially constructed to indicate classroom behaviors that are directly related to learning as seen by the classroom teachers.
- 3) The DESB may be scored for each student without an undue investment of time on the part of the teacher.

Procedures

Teacher Training

Two short training sessions were held to acquaint the staff with the DESB. At the first meeting the study was explained and

student testing procedures described. The directions for scoring the DESB were carefully considered.

Teachers who wished to participate were given score sheets for each of their students. They were asked to score one test before the next meeting.

At the second meeting discussion centered around the test items. In most cases they resolved and clarified questions among themselves only occasionally requesting elaboration from the experimenter.

One teacher declined to participate; all other teachers scored a DESB for each student in their class. The tests were scored under blind conditions in that the teachers did not know the scores of the student testing until after they scored all students on the DESB; neither did they know which students declined to participate until all their DESB scores were completed.

When the entire class had been scored, the teacher returned all scored copies to the experimenter. They were then given access to information about their students' scores on the GFW and the CEFT.

Assistant Examiners

Two graduate students (Master's candidates) assisted in the CEFT testing process. These people underwent two training sessions. They administered the test to at least three subjects, independent of the study subjects, before beginning the study.

Grouping

As a result of their scores students were placed in the following groups:

Auditory screening problems = A_p Those people who scored one-half standard deviation below or lower than their age group mean on the GFW.

Auditory screening non-problem = A_n Those people who scored one-half standard deviation above or higher than their age group mean on the GFW.

Visual screening problem = V_p Those people who scored one-half standard deviation below or lower than their age mean on the CEFT.

Visual Screening non-problem = V_n Those people who scored one-half standard deviation above or higher than their age group mean on the CEFT.

All groupings were done on the basis of these scores. A third set of groups was obtained by including those students who scored low on both tests (group $A_p V_p$) and those students who scored high on both tests (group $A_n V_n$).

It was then possible to compare these three sets of groups in various samples and settings.

Hypotheses

Hypothesis one: The mean of sample A_n and the mean of sample A_p on each behavioral item (1 . . . 47) on the DESB shall not be significantly different at the .05 level of significance.

Hypothesis two: The mean of sample V_n and the mean of sample V_p on each behavioral item (1 . . . 47) on the DESB shall not be significantly different at the .05 level of significance.

Hypothesis three: The mean of sample $A_n V_n$ and the mean of sample $A_p V_p$ on each behavioral item (1 . . . 47) on the DESB shall not be significantly different at the .05 level of significance.

Hypothesis four: The mean of sample A_p of students in the open classroom area (grades 2, 3, 4) and the mean of sample A_p of students in the traditional classroom setting (grades 1, 5, 6) on each behavioral item (1 . . . 47) on the DESB shall not be significantly different at the .05 level of significance.

Hypothesis five: The mean of sample V_p of students in the open classroom area (grades 2, 3, 4) and the mean of sample V_p of students in the traditional setting (grades 1, 5, 6) on each behavioral item (1 . . . 47) on the DESB shall not be significantly different at the .05 level of significance.

Hypothesis six: The mean of sample $A_p V_p$ of students in the open classroom area (grades 2, 3, 4) and the mean of sample $A_p V_p$ of students in the traditional classroom area (grades 1, 5, 6) on each behavioral item (1 . . . 47) on the DESB shall not be significantly different at the .05 level of significance.

Hypothesis seven: The mean of sample A_p obtained at each grade level from one through six and the mean of sample A_n obtained

at each respective grade level on each behavioral item (1 . . . 47) on the DESB shall not be significantly different at the .05 level of significance.

Hypothesis eight: The mean of sample V_p obtained at each grade level from one through six and the mean of sample V_n obtained at each respective grade level on each behavioral item (1 . . . 47) on the DESB shall not be significantly different at the .05 level of significance.

Hypothesis nine: The mean of sample $A_p V_p$ obtained at each grade level from one through six and the mean of sample $A_n V_n$ obtained at each respective grade level on each behavioral item (1 . . . 47) on the DESB shall not be significantly different at the .05 level of significance.

Treatment of Data

The Devereux Elementary School Behavior Rating Scale contains 47 items which focus on specific observable classroom behaviors. A test of significance of difference of the means of the independent samples was done for each of the 47 items.

The Welsch treatment of the Behrens-Fisher problem was used. The * is to indicate a slight variation of the true "t" test statistic. The point of departure occurs in the calculation of the degrees of freedom and is a treatment to solve the problem of unequal variances

of some samples in this study.

$$t^* = \frac{(\bar{x}_1 - \bar{x}_2) - (\mu_1 - \mu_2)}{\sqrt{\frac{s_1^2}{n_1} + \frac{s_2^2}{n_2}}}$$

$$f = \frac{[(s_1^2/n_1) + (s_2^2/n_2)]^2}{\frac{(s_1^2/n_1)^2}{n_1 - 1} + \frac{(s_2^2/n_2)^2}{n_2 - 1}}$$

Although this solution was designed to be used where variances were unequal, no problems were anticipated in using this treatment in a situation where the variances could be nearly equal. This approach is considered to produce a conservative estimate of significant difference between means (Snedecor and Cochran, 1973).

Summary

Both an auditory discrimination test (GFW) and a visual discrimination test (CEFT) were administered individually to each of 196 subjects. Subjects were distributed by grade level as shown in Table 3.1.

The GFW and the CEFT were used for the purpose of grouping the subjects according to their abilities of discrimination as indicated by the test scores.

Teachers were trained to score the Devereux Elementary School Behavior Rating Scale. They scored one DESB Scale for each student under blind conditions.

A comparison was then made between various sets of groups on each of 47 items of the DESB. A conservative "t" test was used to discover the significant differences at the .05 or higher level of significance.

In the next chapter the findings of this study will be presented.

CHAPTER IV

PRESENTATION AND ANALYSIS OF DATA

This study was conducted to investigate the relationship between auditory and visual screening abilities and learning behaviors. The sample for study was drawn from an elementary school setting.

The student's ability to screen extraneous auditory stimuli was evaluated on the basis of scores from the Goldman, Fristoe, Woodcock Test of Auditory Discrimination (noise subtest). The visual screening ability was judged on the basis of scores obtained from the Children's Embedded Figures Test. Classroom learning behaviors were rated by the teachers on the Devereux Elementary School Behavior Rating Scale.

Statistics on the GFW were extensive. The norm tables offered a variety of choices; the table entitled "Percentile Scores to Middle of Score Intervals (For Research Use)" was the choice of the investigator for this study (Goldman et al. , 1970).

Norms on the CEFT were offered as 'tentative' by the authors. More recent research, however, upholds the original data when subjects are of the white, middle-class (Witkin et al. , 1963).

The grouping process was designed to eliminate those scores clustering around the mean--the one-half standard deviation immediately above and immediately below the mean of the appropriate age

group norms. Thus the groups are on opposite ends of the 'normal' or bell curve. The CEFT means and standard deviations table was used to calculate the scores equal to $1/2$ standard deviation above the mean and $1/2$ standard deviation below the mean. The percentile scores of the GFW norms were converted on the z table to obtain the percentage of area between the mean and $1/2$ standard deviation above the mean and $1/2$ standard deviation below the mean.

The Devereux Elementary School Behavior Rating Scale was used as the focus for observation of learning behaviors by the classroom teacher. This scale consists of 47 items, seven of which are positive behaviors, four that may be considered either depending on the age of the subject and the remaining 36 which are negative behaviors. To assist in meaningful interpretation Spivack and Swift (1970) have subjected the scale to a number of statistical refinements. The result of this work was to group these 47 items into 11 behavior factors of three to five highly related items. Three items did not fit into the factors and so are listed separately on the protocol sheet of the DESB. A carefully detailed description of each factor and the items it contains may be found in the manual accompanying the test.

The investigator has chosen to examine the data obtained in this study under the general topics of the behavior factors. The tables used to illustrate results of the study have been adapted from the protocol sheet of the DESB.

Analysis Procedure

The null hypothesis of no significant difference was tested between the groups designated by the testing process to be of non-problem auditory and/or visual screening ability and the groups, which by the same testing process were designated to have problem auditory and/or visual screening ability. The statistic chosen was a conservative "t-like" test designed to solve the anticipated problem of unequal variances between groups. The computer print-out lists the mean for each group on each item as well as the degrees of freedom and the "t" value for each item (Appendix D).

Rejection of the null hypothesis on the basis of the standard Student's t-Distribution table supports the alternative hypothesis that a significant difference does exist. There are negative and positive learning behaviors in this scale so it is important to be able to indicate which group has the higher mean on each item of significant difference.

Hypothesis one: The mean of sample A_n (auditory non-problem) and the mean of sample A_p (auditory problem) on each behavioral item (1. . . 47) on the DESB shall not be significantly different at the .05 level of significance.

Table 4. 1 Comparison of Means of Groups A_p and A_n using Whole Sample.

ITEM	No.	AUDITORY A_n	BEHAVIORS RESULTING IN:
teacher help	2		External
called on	25		Blame
blames	34		
too hard	38	*	
test scores	22		Achievement-
right answ.	23	**	Anxiety
testing	31		
sensitive	33		

*, 05 level of significance

**, 01 level of significance

As indicated in Table 4. 1 the hypothesis is rejected in the case of two items. Both items are negative learning behaviors and the significant difference is in "favor" of the non-problem sample. This information indicates that it is likely to be a student of non-problem auditory screening ability who complains "the work is too hard. " It is also more likely to be a student of non-problem screening ability who expresses anxiety about knowing the right answers.

Hypothesis two: The mean of sample V_n (visual non-problem) and the mean of sample V_p (visual problem) on each behavioral item (1 . . . 47) on the DESB shall not be significantly different at the . 05 level of significance.

Table 4. 2 Comparison of Means of Groups V_p and V_n using the Whole Sample.

ITEM	No.	VISUAL V_n	BEHAVIOR RESULTING IN:
understands	10	**	Comprehension
applies	35	*	
recites	37	**	
brings in	3	*	Creative Initiative
act. imag.	4	*	
start disc.	6	*	
talk exper.	21	*	

*.05 level of significance

** .01 level of significance

The hypothesis is rejected for items 3, 4, 6, 10, 21, 35 and 37.

Table 4. 2 reveals the pattern established as a result of these tests of significance. All of the positive learning behaviors show a significant difference in 'favor' of students of apparently non-problem visual screening ability. According to teacher ratings it is more likely to be the student of normal or better screening ability who gets the point of what he hears or reads in class (item 10), is able to apply what he has learned to a new situation (item 35) and is likely to know the material when called upon in class (item 37). In addition this student is more likely to demonstrate creative initiative (bring relevant materials to class, reveal an active imagination, start class discussion and/or introduce relevant experiences).

Hypothesis three: The mean of sample $A_n V_n$ (auditory non-problem, visual non-problem) and the mean of sample $A_p V_p$ (auditory problem, visual problem) on each behavioral item (1 . . . 47) on the DESB shall not be significantly different at the .05 level of significance.

Table 4. 3 Comparisons of Means of Groups $A_p V_p$ and $A_n V_n$ using the Whole Sample.

ITEM	No.	COMBINED AV_n	BEHAVIORS RESULTING IN:
understands	10	*	Comprehension
applies	35		
recites	37		

*, 05 level of significance

The hypothesis is rejected in the case of item 10. In this test of significant differences of the means only one item (10) is significantly different. Indications are that the student whose auditory and visual screening skills are normal or better will be most likely to get the point of what (s)he reads or hears in class.

Hypothesis four: The mean of sample A_p (auditory problem) of students in the open classroom area (grades 2, 3, 4) and the mean of sample A_p (auditory problem) of students in the traditional classroom setting (grades 1, 5, 6) on each behavioral item (1 . . . 47) on the DESB shall not be significantly different at the .05 level of significance.

Table 4.4 A Comparison of Means of the A_p Group of the Open Classroom and the Means of A_p Group of the Traditional Classroom.

ITEM	No.	AUDITORY		BEHAVIORS RESULTING IN:
		A_{pOC}	A_{pTC}	
needs control	11			Classroom
teases	12			Disturbance
interfere	13			
drawn in	30		**	
starts	1		**	Impatience
sloppy	36			
go back	44			
rushes	47			
see others	24		**	External
rely on t'ch'r	29		**	Reliance
directions	32		**	
swayed	42			
choices	46			
exagg. story	14			Irrelevant-
answers	15		**	Responsiveness
interrupt	17		**	
irrel. talk	26			
seeks t'ch'r	8			Needs Closeness
helps	19	*		to Teacher
friendly	39			
phys. close	45			
unable change	27		*	Additional Items
quits	40			
slow work	41			

*,05 level of significance

**,01 level of significance

The hypothesis is rejected on the nine items where there is a significant difference. Of these nine items seven of them are significantly different at the .01 level. Eight of the nine items are significantly different in 'favor' of the traditional classroom. The significant differences occur on negative learning behaviors with the exception of item 19 which is seen by the test developers as negative only in the upper grades.

Since the actual scores on the DESB are the teacher's comparison of that student with the average student at that grade level, in this test of difference of the means we are attempting to compare teacher perceptions of the students in the traditional classroom and in the open classroom.

Hypothesis five: The mean of sample V_p (visual problem) of students in the open classroom area (grades 2, 3, 4) and the mean of sample V_p (visual problem) of students in the traditional setting (grades 1, 5, 6) on each behavioral item (1 . . . 47) on the DESB shall not be significantly different at the .05 level of significance.

Table 4.5 Comparison of Group V_p in the Open Classroom with Group V_p in the Traditional Classroom Setting.

ITEM	No.	VISUAL V_{TC} p	BEHAVIORS RESULTING IN:
see others	24	*	External
rely on t'ch'r	29		Reliance
directions	32	.*	
swayed	42		
choices			

*.05 level of significance

The hypothesis is rejected in the case of two items which show a significant difference. Both items are negative learning behaviors. They are in the same behavior factor, external reliance. Both involve understanding directions: item 24 asks how often the student looks to see what others are doing before proceeding in class and item 32 inquires as to whether a student is often unable to follow directions given in class. These items indicate that the traditional classroom student with visual screening problems is more often seen by the teacher to demonstrate these negative classroom behaviors than would the open classroom student with visual screening problems be seen by that teacher to demonstrate such behaviors.

Hypothesis six: The mean sample $A_p V_p$ (auditory problem, visual problem) of students in the open classroom area (grades 2, 3, 4) and the mean of sample $A_p V_p$ (auditory problem, visual problem) of students in the traditional classroom area (grades 1, 5, 6) on each behavioral item (1 . . . 47) on the DESB shall not be significantly different at the .05 level of significance.

Table 4.6 Comparison of Means of Group $A_p V_p$ in Open Classroom with Means of $A_p V_p$ in Traditional Classroom.

ITEM	No.	OPEN AV_p	TRADITIONAL AV_p	BEHAVIORS RESULTING IN:
needs control	11			Classroom
teases	12			Disturbance
interfere	13			
drawn in	30		*	

*significant at the .05 level of significance

The hypothesis is rejected in the case of item 30. This item has to do with whether the student is quickly drawn into the talking or noisemaking of others. These findings indicate the student who has both auditory and visual screening problems and is in a traditional classroom setting will be more likely to be "drawn in" to classroom disturbance than will a student who has both auditory and visual screening problems and is in the open classroom area.

Hypothesis seven: The mean of sample A_p (auditory problem) obtained at each grade level from one through six and the mean of sample A_n (auditory non-problem) obtained at each respective grade level on each behavioral item (1. . . 47) on the DESB shall not be significantly different at the .05 level of significance.

The null hypothesis seven is accepted at the grade one level. It is rejected at grade levels two, three, four, five and six as indicated on Table 4.7 which specifies items showing a significant difference between the means of A_p and A_n at each grade level.

Generally it can be said that negative behaviors are demonstrated significantly more often by the A_p group and positive behaviors significantly more often by the A_n group. Two exceptions are noteworthy. Item 3 was significantly higher in the fifth grade A_p than in the fifth grade A_n group. Item 8 was significantly higher in the fourth grade A_n group than in the A_p group.

Table 4.7 A Comparison of Means of Groups A_p and A_n at Each Grade Level 1-6.

ITEM	No.	AUDITORY		BEHAVIORS RESULTING IN:	
		A _p	A _n		
needs control	11	6**4*		Classroom Disturbance	1
teases	12	6*			
interfere	13	6**4**			
drawn in	30	6*			
starts	1			Impatience	2
sloppy	36				
go back	44				
rushes	47	4**			
disrespect	5	5*4*		Disrespect- Defiance	3
defy teacher	7				
subject	9	4*			
rules	16	6*			
teacher help	2	4*		External Blame	4
called on	25				
blames	34	4*			
too hard	38				
test scores	22			Achievement- Anxiety	5
right answ.	23				
testing	31	4*			
sensitive	33	2**4*			
see others	24	3*4**		External Reliance	6
rely on t'ch'r	29				
directions	32	2**4*			
swayed	42				
choices	46			Comprehension	7
understands	10				
applies	35		2**4**		
recites	37			Inattentive- Withdrawn	8
lose attn.	18				
not attnd.	20	4*			
oblivious	28	2*			
reachable	43			Irrelevant- Responsiveness	9
exagg. story	14	4**			
answers	15				
interrupt	17				
irrel. talk	26			Creative Initiative	10
brings in	3	5**	4**		
act. imag.	4		4*		
start disc.	6		2**		
talk exper.	21			Needs Closeness to Teacher	11
seeks t'ch'r	8		4*		
helps	19				
friendly	39				
phys. close	45			Additional Items	
unable change	27				
quits	40	6*4**			
slow work	41				

*, .05 level of significance; **, .01 level of significance; Digit entry = equivalent grade level.

At least one item in each behavior factor shows a significant difference between means.

Grades six and four group A_p are heavily grouped in the classroom disturbance behavior factor. Impatience is indicated by fourth grade A_p group which more often rushes through work. Another clustering occurs in the third behavior factor of disrespect-defiance. Grades four, five and six, group A_p are all represented. Behavior factor four, external blame, shows two items (2, complains teacher doesn't help enough and 34, blames external circumstances) that were significantly different between the fourth grade A_p and A_n groups.

Primary grades along with grade four appear in small clusters in behavior factor five (achievement-anxiety) and again at factor six (external reliance). In grades two and four the A_n group significantly more often (.01 level of significance) is able to apply what has been learned to a new situation (item 35).

Grade four A_p is significantly more likely to tell exaggerated and untruthful stories (item 14) and to not attend to what goes on in class (item 20). Grade two, group A_p is significantly more often oblivious to classroom activities (item 28).

The positive behavior factor which is creative initiative contains significant differences from grade four and grade two "auditory non-problem" groups. Under additional items it is the A_p group in grade

six and grade four which is significantly more likely to quit or give up when something is difficult (item 40).

Hypothesis eight: The mean of sample V_p (visual problem) obtained at each grade level from one through six and the mean of sample V_n (visual non-problem) obtained at each respective grade level on each behavioral item (1 . . . 47) on the DESB shall not be significantly different at the .05 level of significance.

Table 4. 8 Comparison of Means of Groups V_p and V_n Grades One through Six.

ITEM	No.	VISUAL		BEHAVIORS RESULTING IN:	
		V _p	V _n		
needs control	11			Classroom	1
teases	12			Disturbance	
interfere	13				
drawn in	30				
starts	1	1*	5**	Impatience	2
sloppy	36				
go back	44				
rushes	47	3**			
disrespect	5			Disrespect-	3
defy teacher	7			Defiance	
subject	9				
rules	16				
teacher help	2	1*	5**	External	4
called on	25			Blame	
blames	34				
too hard	38				
test scores	22			Achievement-	5
right ans.	23			Anxiety	
testing	31				
sensitive	33				
see others	24	2*4**6**		External	6
rely on t'ch'r	29	2*4**5*6*		Reliance	
directions	32	5**			
swayed	42				
choices	46				
understands	10		3**4**5*	Comprehension	7
applies	35		3**4**5**6*		
recites	37		3*4**5*		
lose attn.	18	4**		Inattentive-	8
not attnd.	20			Withdrawn	
oblivious	28				
reachable	43				
exagg. story	14		5*	Irrelevant-	9
answers	15	1*4*		Responsiveness	
Interrupt	17		5*		
Irrel. talk	26	1*			
brings in	3			Creative	10
act. imag.	4		3*	Initiative	
start disc.	6				
talk exper.	21				
seeks t'ch'r	8	6*		Needs Closeness	11
helps	19	6*		to Teacher	
friendly	39				
phys. close	45	4*			
unable change	27			Additional Items	
quits	40				
slow work	41				

*. 05 level of significance; **. 01 level of significance; digit entry = equivalent grade level

The hypothesis is rejected at all grade levels one through six. In Table 4.8 a much more pronounced clustering is noted than has been previously apparent.

Some item means are significantly different but are scattered with one or two items appearing in the behavior factor. On item two the grade one V_p group and the grade five V_n group significantly more often than their opposites claim the teacher won't help them enough. Grade four V_p group significantly more often loses attention when the teacher explains something (item 18). Grade three V_n group significantly more often demonstrates an active imagination.

Behavior factor two, impatience, contains three significantly different means; they are grade one V_p and grade five V_n on item 1 and grade three V_p on item 47. Irrelevant responsiveness, factor nine has grade five group V_n and grade one and grade four V_p groups showing significantly different means on those items. Factor eleven, needs closeness to teacher, has entries from grade six group V_p and grade four group V_p .

The two strongest clusters occur in factors six and seven. Factor six is external reliance. A total of eight entries occur on items 24, 29 and 32; all are from the V_p groups in grades two, four, five and six.

A total of ten entries occur in three items in behavior factor seven, comprehension. They are all from the V_n groupings in grades

three, four, five and six.

Hypothesis nine: The mean of sample $A_p V_p$ (auditory problem; visual problem) obtained at each grade level from one through six and the mean of sample $A_n V_n$ (auditory non-problem, visual non-problem) obtained at each respective grade level on each behavioral item (1 . . . 47) on the DESB shall not be significantly different at the .05 level of significance.

Table 4.9 Comparison of Means of Groups $A_p V_p$ and $A_n V_n$ at Grade Level One and Grade Level Six.

ITEM		COMBINED		BEHAVIORS RESULTING IN:	
		AV_p	AV_n		
needs control	11			Classroom	1
teases	12			Disturbance	
interfere	13				
drawn in	30				
starts	1			Impatience	2
sloppy	36				
go back	44				
rushes	47	1*			
see others	24			External	6
rely on t'ch'r	29			Reliance	
directions	32	6*			
swayed	42	1*			
choices	46				
understands	10		6**	Comprehension	7
applies	35				
recites	37		1**		

* = .05 level of significance; ** = .01 level of significance; 1 = grade one; 6 = grade six

This hypothesis was difficult to test because the groupings were so poor in numbers. Grades two, three and five each had one student who scored in the non-problem range on both the auditory and visual screening tests; grade four had NO student who scored in the non-problem range on both tests. In grade one the distribution was $A_p V_p = 6$; $A_n V_n = 2$. In grade six it was $A_p V_p = 3$; $A_n V_n = 2$. These groups

are also, of course suspect. The tests were run, however and the results presented.

The hypothesis is rejected at grade level one and at grade level six. In grade one group $A_p V_p$ significantly more often rushed through their work and were significantly more often swayed by the opinion of their peers. In this grade, group $A_n V_n$ would significantly more often be likely to be ready to recite when called upon.

In grade six, group $A_p V_p$ was significantly more often unable to follow directions given in class while group $A_n V_n$ in that grade was significantly more often able to understand what they hear or read in the classroom.

Supplementary Data

As patterns began to emerge, two questions became quite obvious. The first question was in terms of whether the pattern that seemed unique to the upper grades and another pattern that seemed unique to the lower grades could be made more visible. A test of significant difference of the means between the three screening groups was made using a primary sample. The same situation was created using an intermediate sample.

The second question concerned the open classroom and the traditional classroom. The completed tests of significant difference of the means were between the problem screening groups of these two

samples. It seemed necessary to check the non-problem group against the problem group within the same setting. Thus these tests of significant differences of the means were made within the open classroom setting and within the traditional classroom setting.

The primary and intermediate sample test results are combined on Table 4.10. Behavior factors are a convenient way of viewing these scores. Intermediate student scores, especially those students who have auditory screening problems cluster in the factor labeled classroom disturbance.

Both primary and intermediate scores are found in the impatience factor. Primary visual screening problem students and those with both visual and auditory problems are seen as tending to rush through their work and not wanting to go back over work to correct mistakes. Intermediates, on the other hand are visually non-problem or both auditorily and visually non-problem students who indicate their impatience by starting too soon. Neither sample scored significant differences in the area of disrespect-defiance.

Students in both the primary and intermediate samples and in the auditory non-problem and the visual problem groups scored significant differences in the achievement anxiety factor.

External reliance, factor six contains a score from each sample. Intermediate students who have visual screening problems are likely to see how others follow directions in class before they

Table 4. 10 Supplementary Data on Primary and Intermediate Grade Levels.

ITEM	No.	AUDITORY		VISUAL		COMBINED		BEHAVIORS RESULTING IN:	
		A _p	A _n	V _p	V _n	A _p V _p	A _n V _n		
needs control	11							Classroom	1
teases	12	I			I			Disturbance	
interfere	13	I							
drawn in	30	I							
starts	1				I*		I	Impatience	2
sloppy	36								
go back	44					P*			
rushes	47			P		P*			
disrespect	5							Disrespect-	3
defy teacher	7							Defiance	
subject	9								
rules	16								
teacher help	2							External	4
called on	25							Blame	
blames	34								
too hard	38		P						
test scores	22			I				Achievement-	5
right answ.	23		PI					Anxiety	
testing	31			P					
sensitive	33								
see others	24			I*				External	6
rely on t'ch'r	29							Reliance	
directions	32								
swayed	42					P*			
choices	46								
understands	10				PI*			Comprehension	7
applies	35				I				
recites	37				PI*				
lose attn.	18					P*		Inattentive-	8
not atnd.	20							Withdrawn	
oblivious	28					P			
reachable	43					P			
exagg. story	14							Irrelevant-	9
answers	15			P		P		Responsiveness	
interrupt	17	I							
irrel. talk	26								
brings in	3				P*	I		Creative	10
act. imag.	4				P			Initiative	
start disc.	6				I				
talk exper.	21								
seeks t'ch'r	8							Needs Closeness	11
helps	19			I*				to Teacher	
friendly	39								
phys. close	45								
unable change	27							Additional Items	
quits	40								
slow work	41			I					

Entry = .05 level of significance; * = .01 level of significance

do so. Primary students with both auditory and visual screening problems are more likely to be swayed by the opinions of others.

The primary student with auditory and visual screening problems according to the GFW and the CEFT are scored by the teachers as inattentive and withdrawn. More specifically they are often oblivious to their surroundings, unreachable in their own world and lose attention easily. This same group as well as the students with only visual screening problems will give answers that are irrelevant to the discussion in the classroom. The visually non-problem primary student and to some extent the V_n intermediate student demonstrates creative initiative. In this same factor it is the intermediate AV_p student also who brings relevant items to the classroom.

Intermediates with visual screening problems often offer to help the teacher and are slow to complete their work.

It is the child of non-problem visual screening ability both in the primary and in the intermediate sample who is scored as able to understand what he hears or reads in class, who is able to recite in class and in the case of the intermediate sample able to apply what (s)he has learned to a new situation.

Table 4.11 contains a combination of items which scored a significant difference of means for the traditional classroom sample and for the open classroom sample. In this test the groups were compared within the same setting (A_p TC to A_n TC).

Table 4. 11 Supplementary Data on Open Classroom and Traditional Classroom.

ITEM		AUDITORY		VISUAL		COMBINED		BEHAVIORS RESULTING IN:
		A _p	A _n	V _p	V _n	AV _p	AV _n	
needs control	11							Classroom
teases	12				T	O*		Disturbance
interfere	13					O*		
drawn in	30							
starts	1							Impatience
sloppy	36					O*		
go back	44					O*		
rushes	47					O*		
disrespect	5							Disrespect-
defy teacher	7					O*		Defiance
subject	9					O*		
rules	16							
teacher help	2					O*		External
called on	25					O		Blame
blames	34					O		
too hard	38							
test scores	22							Achievement -
right answ.	23		T					Anxiety
testing	31							
sensitive	33					O*		
see others	24	O**		O		O*		External
rely on t'ch'r	29			O		O*		Blame
directions	32					O*		
swayed	42			T		O		
choices	46							
understands	10					O*T*	O	Comprehension
applies	35		O			O*	O	
recites	37					O*T*		
lose attn.	18			T		O*		Inattentive-
not atnd.	20					O*		Withdrawn
oblivious	28					O*		
reachable	43					O*		
exagg. story	14					O		Irrelevant-
answers	15					O*		Responsiveness
interrupt	17					O*		
irrel. talk	26					O*		
brings in	3				T*			Creative
act. imag.	4							Initiative
start disc.	6				T*			
talk exper.	21							
unable change	27					O*		Additional Items
quits	40					O*		
slow work	41					O*		

Entry = Open Classroom or Traditional Classroom

* = .05

** = .01

In the open classroom setting both students of the A_p group and the V_p group were scored as waiting to see how others followed directions before they did so. The V_p group also relied heavily on the teacher for especially specific directions. The A_n group and the V_n group were able to apply what they had learned and in the case of the V_n group were more likely to understand what was heard or read and to be able to recite.

In the traditional classroom sample the A_n group showed anxiety about having correct answers. The V_p group was scored as more often being swayed by the opinion of others and of losing attention easily. The V_n group teased their classmates more but also were thought more likely to recite in class, understand what he read or heard in class (comprehension) but were also more likely to bring in relevant items and to start class discussions (creative initiative).

In the open classroom sample and the comparison between groups $A_p V_p$ and $A_n V_n$, the non-problem group again scored significantly higher in two items in the comprehension factor--ability to understand what is seen or heard in the classroom and to apply what has been learned to a new situation. Of the 36 negative learning behaviors the $A_p V_p$ group scored a significantly higher mean (than the $A_n V_n$ group) on 26 of them.

Summary

The data obtained in this study has been reviewed and analyzed in this chapter. A score was obtained for each subject on each item of the DESB by teacher ratings. Samples within the elementary school setting were selected for examination. The samples were grouped according to their scores on the GFW and the CEFT.

Students whose scores were high on the GFW, noise subtest were said to be of non-problem auditory screening ability (A_n) and students whose scores were low were said to be of poor auditory screening ability (A_p). Students whose scores were high on the CEFT were said to be of non-problem visual screening ability (V_n) and students whose scores were low were said to be of poor visual screening ability (V_p). Students who scored high on both tests were also in group $A_n V_n$ and those who scored low on both tests were labeled $A_p V_p$.

Hypotheses one, two and three, which examined the entire sample were rejected (at the .05 level of significance or higher) on those items specified in Tables 4.1, 4.2 and 4.3.

Hypotheses three, four and five were also rejected (at the .05 level of significance or higher) on those items specified in Tables 4.4, 4.5 and 4.6. These hypotheses compared the problem groups in the open classroom to the problem groups in the traditional classroom. Students in the traditional classrooms had significantly higher scores on various negative learning behaviors.

Hypotheses seven, eight and nine examined groups at individual

grade levels. Hypothesis seven ($A_p - A_n$) was accepted at the first grade level. It was rejected at grade levels two, three, four, five and six. Hypothesis eight ($V_p - V_n$) was rejected at all six grade levels. Hypothesis nine ($A_p V_p - A_n V_n$) could be tested only at grade levels one and six. It was rejected at both these levels.

Supplementary data reviewed included a sample of primary grades (1, 2, 3), and a sample of intermediate grades (4, 5, 6). The number of significant differences found are indicated in Table 4. 12.

Table 4. 12 Numbers of Scores of Significant Differences of Means Within the Primary Grade Levels and Within the Intermediate Grade Levels.

Sample		Number of Scores Found
$A_p - A_n$	Pri.	2
$A_p - A_n$	Int.	5
$V_p - V_n$	Pri.	7
$V_p - V_n$	Int.	10
$A_p V_p - A_n V_n$	Pri.	7
$A_p V_p - A_n V_n$	Int.	2

Samples obtained from the traditional classroom and the open classroom were also presented in the supplementary data. The number of significant differences found are indicated in Table 4. 13.

Table 4. 13 Numbers of Scores of Significant Differences of Means Within the Traditional Classroom and Within the Open Classroom.

Sample		Number of Scores Found
$A_p - A_n$	T. C.	1
$A_p - A_n$	O. C.	2
$V_p - V_n$	T. C.	7
$V_p - V_n$	O. C.	5
$A_p V_p - A_n V_n$	T. C.	0
$A_p V_p - A_n V_n$	O. C.	28

Scores of significant differences of the non-problem groups (A_n and/or V_n) were most often in one or more of the positive learning behaviors. Scores of problem groups in both modes were most often in the area of negative learning behavior.

In the following chapter the implications of these findings will be discussed.

Chapter V

SUMMARY AND CONCLUSIONS

Summary

The purpose of this study was to investigate the relationship between auditory and visual screening ability, as measured by certain specified tests, and the classroom learning behaviors of elementary school children. Auditory screening ability as measured by the Goldman Fristoe Woodcock Test of Auditory Discrimination and visual screening ability as measured by the Children's Embedded Figures Test were used as the basis for grouping students. Individuals were rated by their classroom teachers as to frequency of particular behaviors on the Devereux Elementary School Behavior Rating Scale. Means of groups of "problem screeners" and "non-problem screeners" were computed and compared as to significant differences. The test of significant difference was a conservative, 't-like' test. The acceptable level of significance was .05 or higher.

Significant differences were found to be numerous enough that patterns of behavior seem evident at various grade levels and with either auditory or visual screening problem or non-problem specified.

Findings

Hypotheses

Hypothesis one: The mean of sample A_n (auditory non-problem) and the mean of sample A_p (auditory problem) were significantly different at the .05 or higher level of significance on items 23 and 38.

Hypothesis two: The mean of sample V_n (visual non-problem) and the mean of sample V_p (visual problem) were significantly different at the .05 or higher level of significance on items 3, 4, 6, 10, 21, 35 and 37.

Hypothesis three: The mean of sample $A_n V_n$ (auditory and visual non-problem) and the mean of sample $A_p V_p$ (auditory and visual problem) were significantly different at the .05 level of significance on item 10.

Hypothesis four: The mean of sample A_p (auditory problem) of students in the open classroom area (grades 2, 3, 4) and the mean of sample A_p (auditory problems) of students in the traditional classroom setting (grades 1, 5, 6) were significantly different at the .05 or higher level of significance on items 1, 15, 17, 19, 24, 27, 29, 30 and 32.

Hypothesis five: The mean of sample V_p (visual problem) of students in the open classroom area (grades 2, 3, 4) and the mean of sample V_p (visual problem) of students in the traditional setting (grades 1, 5, 6) were significantly different at the .05 level of significance on items 24 and 32.

Hypothesis six: The mean of sample $A_p V_p$ (auditory and visual problem) of students in the open classroom area (grades 2, 3, 4) and the mean of $A_p V_p$ (auditory and visual problems) of students in the traditional classroom area (grades 1, 5, 6) were significantly different at the .05 level of significance on item 30.

Hypothesis seven: The mean of sample A_p (auditory problem) obtained at each grade level from one through six and the mean of sample A_n (auditory non-problem) obtained at each respective grade level were found to be as stated:

grade one - no significant difference - null hypothesis accepted. Significant differences at .05 level or higher level of significance were found on

grade two - items 6, 28, 32, 33, 35

grade three - item 24

grade four - items 2, 3, 4, 5, 8, 9, 11, 13, 14, 20, 24,

31, 32, 33, 34, 35, 40, 47

grade five - items 3, 5

grade six - items 11, 12, 13, 16, 30, 40.

Hypothesis eight: The mean of sample V_p (visual problem) obtained at each grade level from one through six and the mean of sample V_n (visual non-problem) obtained at each respective grade level were significantly different at the .05 or higher level of significance on the following items:

grade one - items 1, 2, 15, 26

grade two - items 24, 29

grade three - items 4, 10, 35, 37, 47

grade four - items 10, 15, 18, 24, 29, 35, 37, 45

grade five - items 1, 2, 10, 14, 17, 29, 32, 35, 37

grade six - items 8, 19, 24, 29, 35

Hypothesis nine: The mean of sample $A_p V_p$ (auditory and visual problem) obtained at grade level one and grade level six and the mean of sample $A_n V_n$ (auditory and visual non-problem) obtained at grade level one and grade level six were significantly different at the level of .05 significance or higher:

grade one - items 37, 42, 47.

grades two-five - no sample available

grade six - items 10, 32.

Auditory Findings

Upper grade (4, 5 and 6) auditory problems cluster mainly in two behavior factors, classroom disturbance and disrespect-defiance. Classroom disturbance is a strong cluster. Sixth and fourth grades as well as the intermediate auditory problem samples have significant differences of the means in this cluster. In disrespect-defiance only one (item 7) does not show a significant difference of the mean. This item asks . . . how often the child acts defiant (says, "I won't do it"). The implication seems to be that the teacher doesn't feel a personally directed defiance but simply a defiance of the surrounding structure (subject, rules, disrespect).

Sixth and fourth grade levels also indicate a significant difference of the means on item 40. This item refers to the tendency to quit when things are difficult. This seems to support the Adelerian theory that a misbehaving child (classroom disturbance, disrespect-defiance) is a discouraged child (Dreikurs and Stolz, 1964).

The "primary" pattern is not as strongly defined although it too is quite clear if grade four is included. Grade one did not contain a significant difference in the auditory problem-non-problem area. The pattern appears in three behavior factors:

achievement-anxiety, external reliance and creative initiative. The former two behaviors are of course negative in their implications for learning. The achievement-anxiety factor seems to contain a wide representation of significant differences. In the problem area however, it tends to be a "primary" pattern. A "primary" pattern is noted in the area of external reliance. Auditory problems from the open classroom sample are also included. The latter behavior factor, creative initiative, is considered a positive learning behavior. The items in this factor require experiential activity previous to introduction of material into the classroom and it would be impossible to define whether that had been an auditory or visual experience. Thus it comes as no surprise that fifth grade auditory problems also show a significant difference in this area.

The total sample contained significant differences of the mean on two items; item 38 says work is too hard and item 23, show anxiety about knowing the right answers. Significant differences on item 38 also come from the primary sample and on item 23 from the primary, intermediate and traditional classroom samples. Non-problem students are more likely to voice these complaints, the implications being that students with auditory problems will not reveal their concerns about knowing the right answer or having work that is too hard. The lone representative in the auditory area on the comprehension factor is from the open classroom auditory

non-problem sample on item 35.

Visual Findings

The patterns in the visual findings are, for the most part, very strongly defined. The two factors where scores are quite obvious are external reliance and comprehension. The visual problem students in grades two, four, five and six vividly demonstrate their dependence on outside assistance for cues as to what to do. Also represented in this cluster are V_p samples from the open classroom, the traditional classroom and the intermediate level. Visual non-problem students indicate an equally strong tendency toward the positive behavior factor of comprehension. Grades three, four, five and six are represented, along with visual non-problem samples from the open classroom, the traditional classroom, the TOTAL visual sample, the primary level and the intermediate level. Neither the setting nor the grade level appear to influence the results to a great degree. This factor indicates that it is the visually non-problem child who understands what (s)he hears and reads, is able to apply what has been learned to a new situation and can report or recite what has been learned. It seems to be so clearly the visually non-problem child who demonstrates these competencies that there is a strong implication that the ability to screen visually is an essential tool of learning by the third grade level. This is not to say that

learning cannot take place without this ability; however the visual screening ability apparently enhances the learning process so that a significant difference in behavior is noted.

The second positive behavior factor is creative initiative. The total sample V_n is strongly represented in this factor along with V_n samples from the traditional classroom, primary level, intermediate level and the third grade. Spivack and Swift (1967) discuss this factor in terms of the student's involvement in and active contribution to the learning environment. It is the V_n (visual non-problem) child (as opposed to V_p) who is most likely to become involved in the learning environment. The authors of the DESB (Spivack and Swift, 1967) intimate that a lack of involvement indicates the subject is 'divorcing' himself from the learning environment. The implication in this situation however is that the association between the student and the learning environment was never established. The lack of perceptual (auditory and visual) organization blocks the child's ability and eventually the desire to become involved in her or his education.

Irrelevant-responsiveness tends to be a factor in the "primary" pattern. Two of the few significant differences from the first grade V_p sample are in this area. The fourth grade and the primary level are also represented. Inability to organize the perceptions may be a part of this situation. The students' response to being bombarded

by visual stimuli that can't be organized is to give irrelevant answers and to make irrelevant remarks during a classroom discussion.

Behavior factor 11, needs closeness to teacher, may be considered a negative behavior only when scores are on extreme ends of the scales indicating extreme distance between the teacher and student on the lower end of the scale and extreme dependence on the teacher on the upper end of the scale. Dependency on the teacher would be considered of more concern in the normal upper grade classroom than in the normal primary classroom. This factor is a part of the pattern established by visual problem students. The implication is, this action may be necessary for these students to be able to establish a relationship with the teacher.

If, as Cruickshank (1967) believes, the child cannot sort the visual image of the teacher from other stimuli in the room that child may be forced to physically seek out the teacher at other than regular classroom activity.

Auditory-Visual Findings

$A_p V_p$ (auditory and visual screening problems) and $A_n V_n$ (auditory and visual screening non-problems) were tested for significant differences of the means on each of the 47 items on the DESB within these samples: primary level (1, 2, 3), intermediate level

(4, 5, 6), open classroom (2, 3, 4), traditional classroom (1, 5, 6), total sample (1, 2, 3, 4, 5, 6), grades one and grades six. Grades two, three, four and five contained either one student or no students in the $A_p V_p$ group.

The most spectacular results were shown when the $A_p V_p$ open classroom sample scored significant differences in 26 of a possible 36 negative behaviors. There are some scattered items in the factors of classroom disturbance, disrespect-defiance, and achievement-anxiety. These appear to reflect previously mentioned findings. In addition to these items, there are several noteworthy clusters. In the behavior factor impatience, the open classroom sample is represented along with the first grade and the primary level samples. Clinicians have indicated that these behaviors are expected. Specifically, that due to perceptual disorganization, $A_p V_p$ students' work is often sloppy, that they tend to rush through their work and once it's completed certainly do not want to go back over that work.

External blame is another factor that contains a cluster from the open classroom $A_p V_p$ sample. These students have many excuses; they blame external circumstances, say the teacher doesn't help enough and that the teacher never calls on them. Interestingly enough, however, these students aren't likely to say that the work is too hard.

External reliance contains significant differences from the $A_p V_p$

primary, first grade, sixth grade and open classroom samples.

The implications of these behaviors are given particularly in terms of leadership, following directions and being self-reliant. Younger students in these samples seem to be especially susceptible to the opinions of their peers.

Primary and open classroom $A_p V_p$ samples indicate a tendency toward being inattentive and withdrawn. The implication of being oblivious to activities in the classroom and of wandering attention is obvious in terms of learning behaviors. If one does not really see or does not really hear what is going on in the classroom, no matter what the setting, learning does indeed become difficult.

Irrelevant responsiveness is quite likely in the open classroom $A_p V_p$ sample. The primary $A_p V_p$ sample is also represented when answers are irrelevant to the question. Judgement as to what one knows or has learned is often made on the basis of the verbal response to what is appropriate for the situation. Implications in these behaviors are that learning simply has not occurred, lack of perception may well be the cause. The child has not been able to organize the stimuli in a manner to make it useful or usable.

Each of the three additional items are significantly different in favoring the $A_p V_p$ open classroom sample. These behaviors, inability to change tasks (perseveration), quitting when things get difficult (easily discouraged) and slow work (laboriously done) are

described in clinical observations of 'learning disability' students.

As in previously detailed findings in the comprehension behavior factor the mean of non-problem groups is significantly different from the mean of the problem students. Samples represented are from the first grade, the sixth grade, the open classroom and the total sample. Implications are that the learning process is clearly enhanced by auditory and visual screening ability.

Raw Score Data

Two pertinent observations result from a careful perusal of the scores of the GFW and the CEFT after subjects have been grouped according to their scores on these instruments.

After the teachers had rated each of their students, they made an appointment to review the findings of the GFW and CEFT. These findings were analyzed according to grade level and groupings for both instruments were indicated opposite the students' names (Appendix C). Teachers of grades three through six indicated that most of the students whose visual screening ability was scored as normal or better were also members of the top reading group at that grade level. Since the CEFT shows no relation ($r=.02$) with, for example, WISC composite verbal-comprehension scores in past studies (Witkin et al., 1971) the implication is that visual screening ability contributes to the reading efficiency of elementary students.

The second observation was made as groupings were plotted in adjacent columns. The trend in the fifth and sixth grades indicated that by the time students reach the fifth or sixth grades they have chosen auditory or visual strengths. If a student was 'low' in one modality (s)he was often 'high' in the other modality. This possibility implies uneven development and constant compensation processes. However it also implies a 'best' way for a student to learn. This student should be encouraged to capitalize upon his strengths - especially in stress situations (i. e. testing). The student should also be encouraged to work on development of the lesser ability.

Conclusions

Several significant behavior patterns have been described. Variations exist because of age or grade level and because of specific screening problem(s). A great commonality is noted concerning the positive learning behavior factors, creative initiative and comprehension. The ability to screen auditorially and to screen visually increases the likelihood of the student becoming involved and contributing to the learning environment (creative initiative). Those students who are able to screen visually are significantly different, more able, than the visual problem students to understand what is heard or read in class, apply what was learned to a new situation and to recite in class. The ability to visually screen extraneous

stimuli contributes significantly the student's comprehension. It strongly enhances the learning process from the third grade through the sixth grade.

Generally students with auditory screening problems tended toward behavior problems. Students with visual screening problems often had academic problems.

Recommendations

Field of Education

- 1) Screening abilities of students should be of as much concern to the teacher as is their acuity in vision and audition. These screening abilities should be tested on a regular basis in the elementary school.
- 2) Teachers must be made aware of symptoms of screening problems as well as cognizant of helpful coping procedures.
- 3) Parents, students and teachers need to be able to consult with specialists who can confirm or reject diagnosis, assist in developing individual remediation programs and assist in evaluating progress.
- 4) Encourage and train teachers to learn to use behavioral rating scale(s) to discover and evaluate points of learning "break-down" in order to more proficiently prescribe for the individual's learning needs and perceptual development.

- 5) Encourage and provide for perceptual development through developmental programs aimed at primary (K-3) grade levels; provide emphasis in perceptual development throughout the elementary school.

For Further Study

- 1) Investigate the possibility that students with auditory screening problems are unaware that the noise they create is a problem.
- 2) Investigate the effect of the individual's awareness of personal screening problems and learning of appropriate coping behaviors.
- 3) Initiate a long term study of perceptual remediation efforts and how they affect behaviors and achievements.
- 4) Investigate the relationship of visual screening and reading, mathematics.
- 5) Investigate the relationship of auditory screening and negative learning behaviors.

BIBLIOGRAPHY

- Aaron, Ira E. , Translatory research into practice: reading readiness, visual perception and auditory perception in Perception and Reading, Helen K. Smith, ed. Vol. 12, Part 4 Proceedings of the Twelfth Annual Convention, International Reading Association. Newark, Delaware. 1968. p. 131.
- Arnheim, Rudolf, Visual thinking. Los Angeles, CA: University of California. 1969. pp. 54-79.
- Ayres, A. Jean, Manual - Southern California Figure-Ground Visual Perception Test. Los Angeles: Western Psychological Sciences.
- Barsch, Ray H. Achieving perceptual motor efficiency Seattle, Washington: Special Child Publications. 1968. pp. 231-289.
- Bartley, S. Howard, Principles of perception. Harper and Row. 1958. pp. 84-96.
- Bateman, Barbara, The efficacy of an auditory and a visual method of first grade reading instruction with auditory and visual learners in Perception and reading, Helen K. Smith, ed. Vol. 12, Part 4. Proceedings of the Twelfth Annual Convention. International Reading Association. Newark, Delaware. 1968. p. 110.
- Beadle, Muriel, A child's mind. New Jersey: Doubleday and Company, 1970. 321 p.
- Beardslee, David C. and Michael Weitheimer. Readings in Perception. Van Nostrand publishing Company. 1958. 728 p.
- Best, John W. Research in education. New Jersey: Prentice-Hall, Inc. 1970.
- Birch, Herbert G. , Brain damage in children, in Learning disabilities, McCarthy and McCarthy, ed. Boston: Allyn and Bacon. 1969. p. 4-5.
- Bowd, Alan D. , Retest reliability of the Children's Embedded Figures Test for Young Children, Perceptual and Motor Skills, 1974, 39, 442.

- Bruininks, Robert H. Auditory and visual perceptual skills related to the reading performance of disadvantaged boys. *Perceptual and Motor Skills*, 1969, 29, 179-186.
- Bruner, J. S. et al. Studies in cognitive growth. New York: Wiley and Sons, Inc. 1966. pp. 10-15.
- Buros, Oscar Krisen, ed. The Seventh Mental Measurements Yearbook. New Jersey: The Gryphon Press. 1972. p, 938.
- Chalfant, James C. and Corrine E. Kass, Training specialists for children with learning disabilities, in *Learning disorders*, Vol. 3 Jerome Hellmuth, ed. Seattle, Washington: Special Child Publications of the Seattle Segain School, Inc. 1968.
- Chalfant, James C. and Margaret A. Scheffelin Central processing dysfunctions in children: a review of research. Department of Health, Education and Welfare, Bethesda, Maryland. 1969. p. 137-139.
- Cratty, Bryant J. Physical expressions of intelligence. New Jersey: Prentice-Hall. 1972.
- Cruickshank, William M. The brain-injured child in home, school and community. New York: Syracuse University Press. 1967. 294 p.
- Davis, J. M., W. F. McCourt, P. Solomon and S. I. Solomon. The effect of visual stimulation on hallucinations and other mental experiences during sensory deprivation. *American Journal of Psychiatry*, 1960, 116, 889-892.
- Dember, William N. The psychology of perception. Holt, Rinehart and Winston. 1960. p. 145-146.
- Deutsch, J. Anthony and Diana Deutsch, *Physiological psychology*. Illinois: The Dorsey Press. 1973. p. 167, 282, 380-381.
- Dreikurs, R. and V. Stolz. Children: the challenge. New York: Hawthorne Press. 1964.
- Epstein, William, Varieties of perceptual learning. New York: McGraw-Hill Book Company. 1967. p. 124, 144-151, 272.

- Flower, Richard M. The evaluation of auditory abilities in the appraisal of children with reading problems in Perception and reading, Helen K. Smith, ed. Vol. 12, Part 4. Proceedings of the Twelfth Annual Convention. International Reading Association. Neward, Delaware. 1968. p. 24.
- Freedman, S. J. and M. Greenblatt. Studies in human isolation. Technical Report 59-266, Wright-Patterson AFB, Ohio, WADC Aero-Medical Lab. 1959.
- Frostig, Marianne, Visual modality and reading in Perception and reading, Helen K. Smith, ed. Vol. 12, Part 4, Proceedings of the Twelfth Annual Convention, International Reading Association. Newark, Delaware. 1968. p. 28.
- Gearheart, B. R., Learning disabilities. St. Louis: The C. V. Mosby Company, 1973. p. 108-136.
- Gibson, Eleanor J., Development of perception: discrimination of depth compared with discrimination of graphic symbols. Monographs of the Society for Research in Child Development. 1963. Serial Number 86, Vol. 28, 5-24 (Ch. 13).
- Goldman, Ronald, Macalyne Fristoe and Richard W. Woodcock. Manual, Test of Auditory Discrimination, Circle Pines, Minn. American Guidance Service. 1970. 31 p.
- Gross, Charles G., H. Philip Zeigler. Readings in psychological psychology - neurophysiology|sensory processes. New York: Harper and Row. 1969. p. 147, 270-274.
- Jackson, D. N., "A further examination of the role of autism in a visual figure-ground relationship." Journal of Psychology, 1954, 38, pp. 339-357.
- Johnson, Doris J. and Hilmer R. Myklebust. Learning disabilities, educational principles and practices. New York: Greene and Stratton. 1967.
- Katz, P. A., "Effects of labels on children's perception and discrimination learning," Journal Experimental Psychology. 1963. pp. 423-428.

- Kephart, Newell C. The slow learner in the classroom: Ohio: Merrill Publishing Company. 1960. p. 31, 81, 209, 235.
- Kirk, Samuel A. and Jeanne McRae McCarthy, ed. Learning disabilities selected ACLD papers. Palo Alto, CA.: Houghton Mifflin Company. 1975.
- McCarthy, James J. and Joan F. McCarthy. Learning disabilities. Boston: Allyn and Bacon. 1969. p. 138.
- Marks, Lawrence E. Sensory processes, the new psychophysics. New York, Academic Press. 1974. p. 217, 287.
- Mecham, Merlin Audiolinguistics skills in children. St. Louis: Warren H. Green. 1969. p. 16
- Morency, Anne, Auditory modality and reading, in Perception and reading, Helen K. Smith, ed. Vol. 12, Part 4, Proceedings of the Twelfth Annual Convention, International Reading Association. Newark, Delaware. 1968. p. 18.
- Muller, Philippe, The tasks of childhood. Translated from the French by Anita Mason. New York: McGraw-Hill. 1969.
- Mussen, Paul Henry, John Conger and Jerome Kagan. Child development and personality. New York: Harper and Row. 1963. p. 426-505.
- Oxeridine, Joseph B. Psychology of motor learning. Appleton-Century-Crofts, 1968. p. 36-37. 284-285.
- Palermo, David S. and Lewis P. Lipsitt, eds. Research readings in child psychology. New York: Holt, Rinehart and Winston. 1963.
- Piaget Jean, Six psychological studies New York: Vintage Books. 1967. p. 6, 7.
- Richardson, Sylvia. Learning disabilities: an introduction in Learning disabilities, selected ACLD papers. Samuel A. Kirk, Jeanne McRae McCarthy.

- Robson, Colin, Experiment, design and statistics in psychology. Baltimore, Maryland: Penguin Book, Ltd. 1970.
- Rock, Irvin, An introduction to perception. New York: Macmillan Publishing Company. 1975. p. 346
- Sage, George H. Introduction to motor behavior: a neuropsychological approach. Menlo Park, CA: Addison-Wesley Publishing Company. 1971. pp. 153-209.
- Solly, Charles M. and Gardner Murphy, Development of the perceptual world. New York: Basic Books, Inc. 1960. pp. 262-288.
- Snedecor, George W., Statistical methods. Ames, Iowa: The Collegiate Press. 1946. pp. 82-85.
- Snedecor, George W. and William G. Cochran Statistical methods. Ames, Iowa: Iowa State University Press, Sixth Edition. 1973. p. 115.
- Spivack, George and Marshall Swift. Devereux elementary school behavior rating scale manual. Devon, PA: The Devereux Foundation. 1967. 33 p.
- Spivack, George and Marshall Swift. A study of the nature and organization of disturbed elementary classroom behavior. A Report to the Office of Education, Health, Education and Welfare. Devon, Penn: The Devereux Foundation. 1967. ED 012-545.
- Wepman, Joseph M. and Ralph W. Heine. Concepts of personality. Chicago: Aldine Publishing Company. 1963.
- Wilentz, Joan Steen, The senses of man. New York: Thomas Y. Crowell Company. 1968. p. 160-190, 216-304.
- Willenberg, Ernest P., Foreword to Learning disabilities by B. R. Gearheart, St. Louis: The C. V. Mosby Company, 1973.
- Witken, Herman A., Philip K. Altman, Evelyn Raskin, Stephen A. Karp. Manual for Embedded Figures Test, Children's Embedded Figures Test, Group Embedded Figures Test. Palo Alto, CA: Consulting Psychologists Press, Inc. 1971. 32 p.

Wood, Nancy E. Verbal learning: dimensions in early learning series. Belmont, CA: Dimensions Publishing Co. 1969.

Wyer, Robert S. ed. Cognitive organization and change: an information processing approach. Maryland: Lawrence Erlbaum Associates, Inc. 1974. pp. 13-20.

Zusne, Leonard, Visual perception of form. New York: Academic Press, 1970. pp. 2-167, 247-288, 353-381.

APPENDICES

APPENDIX A

Elements of Informed Consent

BASIC ELEMENTS OF INFORMED CONSENT

The informed consent of subjects will be obtained by methods that are adequate and appropriate. Informed consent is the agreement obtained from a subject, or from his authorized representative, to the subject's participation in an activity.

The basic elements of informed consent are:

1. A fair explanation of the procedures to be followed, including an identification of those which are experimental;
2. A description of the attendant discomforts and risks;
3. A description of the benefits to be expected;
4. A disclosure of appropriate alternative procedures that would be advantageous for the subject;
5. An offer to answer any inquiries concerning the procedures;
6. An instruction that the subject is free to withdraw his consent and to discontinue participation in the project or activity at any time.

In addition, the agreement, written or oral, entered into by the subject, should include no exculpatory language through which the subject is made to waive, or to appear to waive, any of his legal rights, or to release the institution or its agents from liability for negligence.

sko
5/21/74

Taken from: The Institutional Guide to DHEW Policy on Protection of Human Subjects.

To Lincoln School Parents:

The ability of a child to hear or to see is of great importance in his or her daily life. Whether or not the child can use this ability efficiently may depend on how well he or she can "screen out" unimportant things or events and concentrate on the task in front of him. One must be able to give his attention in order to learn.

An opportunity for children at Lincoln School to have their screening abilities checked has become available. As a part of the research for a doctoral thesis, Marci Ling, who has been involved in our school's practicum program for the past four years has offered this service. The data obtained would be used to obtain group scores. NO INDIVIDUAL SCORES WILL BE USED as a part of the study. Results will, of course, be available for the teachers; parents of children discovered to have screening problems will also be notified.

The study has been designed so that interruption of class time will be minimal; students will not be taken from the classroom.

Parents who object to having their children participate in this program are asked to state the fact in writing and see that the school office receives the note no later than April 30, 1975. (If a time extension is necessary please call Lincoln School office before the deadline.)

Those who have questions are invited to call the school office, their children's teacher, or Mrs. Ling at 752-6105.

Marci Ling

P.S. Mrs. Ling has been working with our counseling program at Lincoln. She is an experienced teacher who has taught for eight years. She has taught second, sixth and eighth grades and has specialized in music and physical education. This project has been cleared with our Central Office Personnel. I have every confidence that this will be done with a minimum of interruption to our boys and girls.

S. W. Waldron

The following statement will be read to students in each classroom:

"In our booth in the corner of the room we have two things to do. You will be allowed a turn at each one. In one turn you will wear earphones to hear some words that tell which picture you are to point out. In the second turn you will be shown the shape of a tent and the shape of a house; then you will be shown some pictures of toys and things and asked to find the shape in the picture.

We will write down your answers but, of course you will NOT get a grade. This is an exercise to find whether you can see or hear as well as usual if other things are happening at the same time.

This is not something you have to do; but, we think it will be fun to do and interesting for you to learn more about yourself.

Do you have questions about these activities?

APPENDIX B

Instruments

•

SCORE SHEET FOR


 CHILDREN'S
 EMBEDDED
 FIGURES TEST


NAME _____

CLASS _____

BIRTH DATE _____ SEX: M. ___ F. ___

DATE _____ EXAMINER _____

TENT	DESCRIPTION	SCORE	HOUSE	DESCRIPTION	SCORE
P ₁			P ₃		
P ₂			H ₁		
T ₁			H ₂		
T ₂			H ₃		
T ₃			H ₄		
T ₄			H ₅		
T ₅			H ₆		
T ₆			H ₇		
T ₇			H ₈		
T ₈			H ₉		
T ₉			H ₁₀		
T ₁₀			H ₁₁		
T ₁₁			H ₁₂		
			H ₁₃		
			H ₁₄		
Total Score TENT			Total Score HOUSE		
			TOTAL TEST SCORE		


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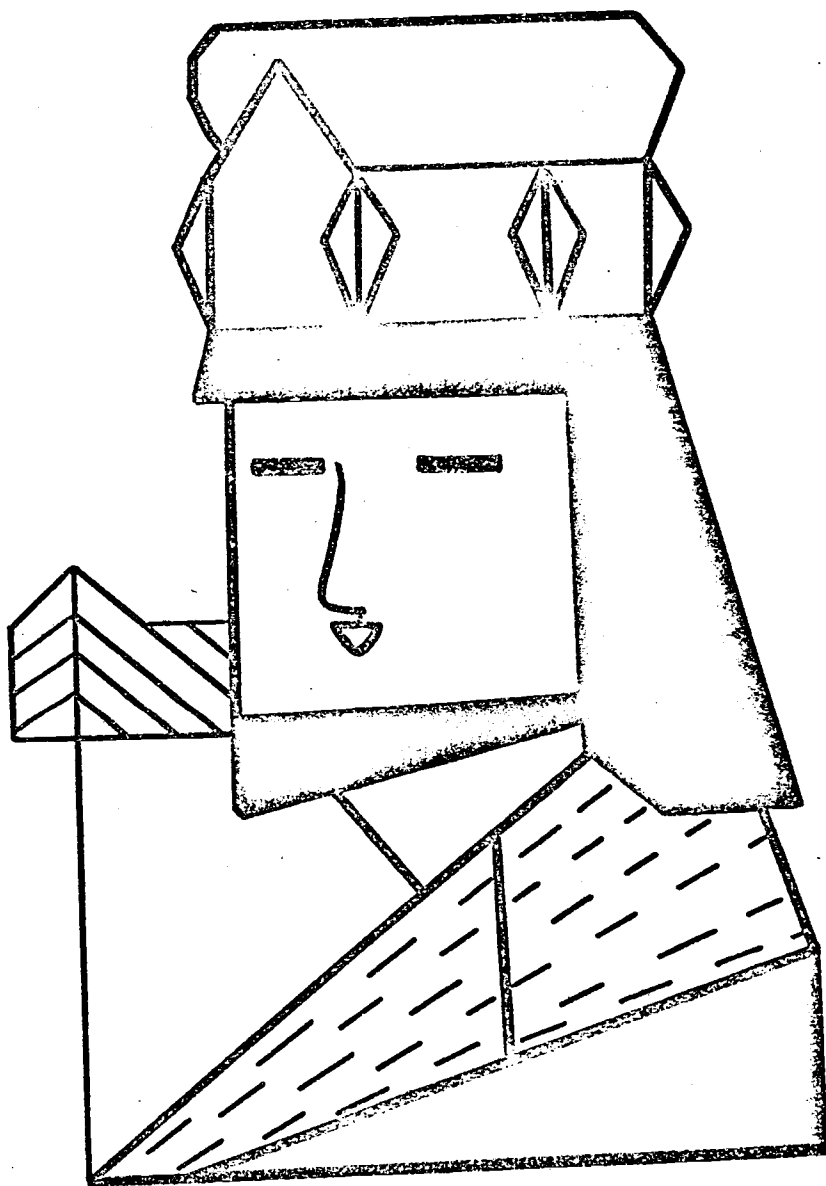
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Plate CEFT

GOLDMAN - FRISTOE - WOODCOCK TEST OF AUDITORY DISCRIMINATION

By Ronald Goldman, Ph.D.; Macalynne Fristoe, M.S.; and Richard W. Woodcock, Ed.D.



NAME _____ AGE _____ GRADE _____ SCHOOL _____
TEACHER _____ DATE _____ EXAMINER _____
COMMENTS _____

Tape Player: Make _____ Model _____ Earphones Used: ☐ Yes ☐ No Pretraining with Large Training Plates: ☐ Yes ☐ No

TRAINING PROCEDURE

Words Failed to Train

TOTAL WORDS _____
TEST WORDS(*) _____

QUIET SUBTEST

TOTAL ERRORS _____
PERCENTILE RANK _____
PAUSES _____

NOISE SUBTEST

TOTAL ERRORS _____
PERCENTILE RANK _____
PAUSES _____

TRAINING PROCEDURE

Indicate correct responses by a (+), incorrect responses by a zero (0). Blank spaces indicate trial not administered.

Plate	Stimulus Word	Trial 1	Trial 2	Trial 3	Plate	Stimulus Word	Trial 1	Trial 2	Trial 3
1:	chair	_____	_____	_____	1:	coal	_____	_____	_____
	she	_____	_____	_____		mail	_____	_____	_____
2:	light	_____	_____	_____	2:	veil	_____	_____	_____
	tack	_____	_____	_____		key	_____	_____	_____
3:	see	_____	_____	_____	3:	rail	_____	_____	_____
	cash	_____	_____	_____		pat	_____	_____	_____
4:	cab	_____	_____	_____	4:	back	_____	_____	_____
	comb	_____	_____	_____		bee	_____	_____	_____
5:	core	_____	_____	_____	5:	pea	_____	_____	_____
	bear	_____	_____	_____		patch	_____	_____	_____
6:	shack	_____	_____	_____	6:	cone	_____	_____	_____
	fat	_____	_____	_____		tear	_____	_____	_____
7:	path	_____	_____	_____	7:	sat	_____	_____	_____
	bite	_____	_____	_____		wake	_____	_____	_____
8:	core	_____	_____	_____	8:	knee	_____	_____	_____
	hair	_____	_____	_____		tall	_____	_____	_____
9:	fair	_____	_____	_____	9:	shack	_____	_____	_____
	write	_____	_____	_____		pig	_____	_____	_____
10:	lake	_____	_____	_____	10:	pear	_____	_____	_____
	nail	_____	_____	_____		tea	_____	_____	_____
11:	pack	_____	_____	_____	11:	sign	_____	_____	_____
	sail	_____	_____	_____		cat	_____	_____	_____
12:	vine	_____	_____	_____	12:	wig	_____	_____	_____
	night	_____	_____	_____		pail	_____	_____	_____
13:	shine	_____	_____	_____	13:	whale	_____	_____	_____
	dig	_____	_____	_____		cap	_____	_____	_____
14:	line	_____	_____	_____	14:	big	_____	_____	_____
	hat	_____	_____	_____		calf	_____	_____	_____
15:	cab	_____	_____	_____	15:	Jack	_____	_____	_____
	me	_____	_____	_____		rake	_____	_____	_____
16:	make	_____	_____	_____	16:	we	_____	_____	_____
	sack	_____	_____	_____		catch	_____	_____	_____

Return to Plate 1 and present the second pair of stimulus words. Return to any failed items, giving a second trial. Repeat for Trial 3.

A zero in Trial 3 indicates failure to learn a word-picture association (failure to train).

Words coded * are Test Words.

QUIET SUBTEST

Record the number of the subject's response for each plate. If necessary to stop the test procedure due to slow subject response, place a check (✓) under "Pause."

Plate	Test Word	Subj's Correct Resp.	Pause	Plate	Test Word	Subj's Correct Resp.	Pause
17:	cash	(3) <input type="checkbox"/>	_____	32:	cap	(2) <input type="checkbox"/>	_____
18:	wake	(1) <input type="checkbox"/>	_____	33:	bear	(4) <input type="checkbox"/>	_____
19:	dig	(3) <input type="checkbox"/>	_____	34:	Jake	(3) <input type="checkbox"/>	_____
20:	me	(3) <input type="checkbox"/>	_____	35:	we	(4) <input type="checkbox"/>	_____
21:	fair	(4) <input type="checkbox"/>	_____	36:	sign	(2) <input type="checkbox"/>	_____
22:	catch	(4) <input type="checkbox"/>	_____	37:	coal	(4) <input type="checkbox"/>	_____
23:	tack	(2) <input type="checkbox"/>	_____	38:	mail	(1) <input type="checkbox"/>	_____
24:	rake	(1) <input type="checkbox"/>	_____	39:	pack	(2) <input type="checkbox"/>	_____
25:	knee	(1) <input type="checkbox"/>	_____	40:	sail	(4) <input type="checkbox"/>	_____
26:	Jack	(3) <input type="checkbox"/>	_____	41:	bee	(4) <input type="checkbox"/>	_____
27:	big	(1) <input type="checkbox"/>	_____	42:	shack	(3) <input type="checkbox"/>	_____
28:	vine	(2) <input type="checkbox"/>	_____	43:	tea	(4) <input type="checkbox"/>	_____
29:	night	(3) <input type="checkbox"/>	_____	44:	make	(2) <input type="checkbox"/>	_____
30:	cone	(4) <input type="checkbox"/>	_____	45:	back	(4) <input type="checkbox"/>	_____
31:	pail	(4) <input type="checkbox"/>	_____	46:	hair	(3) <input type="checkbox"/>	_____

To score errors, make a slash through the number printed in the "Correct Response" column.

ERROR ANALYSIS

	PLOSIVES	CONTINUANTS	NASALS	
VOICED	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	TOTAL VOICED
UNVOICED	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	TOTAL UNVOICED
	TOTAL PLOSIVES	TOTAL CONTINUANTS	TOTAL NASALS	

NOISE SUBTEST

Record the number of the subject's response for each plate. If necessary to stop the test procedure due to slow subject response, place a check (✓) under "Pause."

Plate	Test Word	Subj's Correct Resp.	Pause	Plate	Test Word	Subj's Correct Resp.	Pause
47:	light	_____	_____	62:	vine	(2) <input type="checkbox"/>	_____
48:	see	_____	_____	63:	night	(1) <input type="checkbox"/>	_____
49:	comb	_____	_____	64:	cone	(4) <input type="checkbox"/>	_____
				65:	pail	(4) <input type="checkbox"/>	_____
				66:	cap	(2) <input type="checkbox"/>	_____
				67:	shack	(3) <input type="checkbox"/>	_____
				68:	tea	(3) <input type="checkbox"/>	_____
				69:	make	(2) <input type="checkbox"/>	_____
				70:	back	(3) <input type="checkbox"/>	_____
				71:	hair	(1) <input type="checkbox"/>	_____
				72:	cash	(3) <input type="checkbox"/>	_____
				73:	wake	(1) <input type="checkbox"/>	_____
				74:	dig	(4) <input type="checkbox"/>	_____
				75:	me	(4) <input type="checkbox"/>	_____
				76:	fair	(2) <input type="checkbox"/>	_____
				77:	catch	(3) <input type="checkbox"/>	_____
				78:	tack	(4) <input type="checkbox"/>	_____
				79:	rake	(1) <input type="checkbox"/>	_____

To score errors, make a slash through the number printed in the "Correct Response" column.

ERROR ANALYSIS

	PLOSIVES	CONTINUANTS	NASALS	
VOICED	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	TOTAL VOICED
UNVOICED	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	TOTAL UNVOICED
	TOTAL PLOSIVES	TOTAL CONTINUANTS	TOTAL NASALS	

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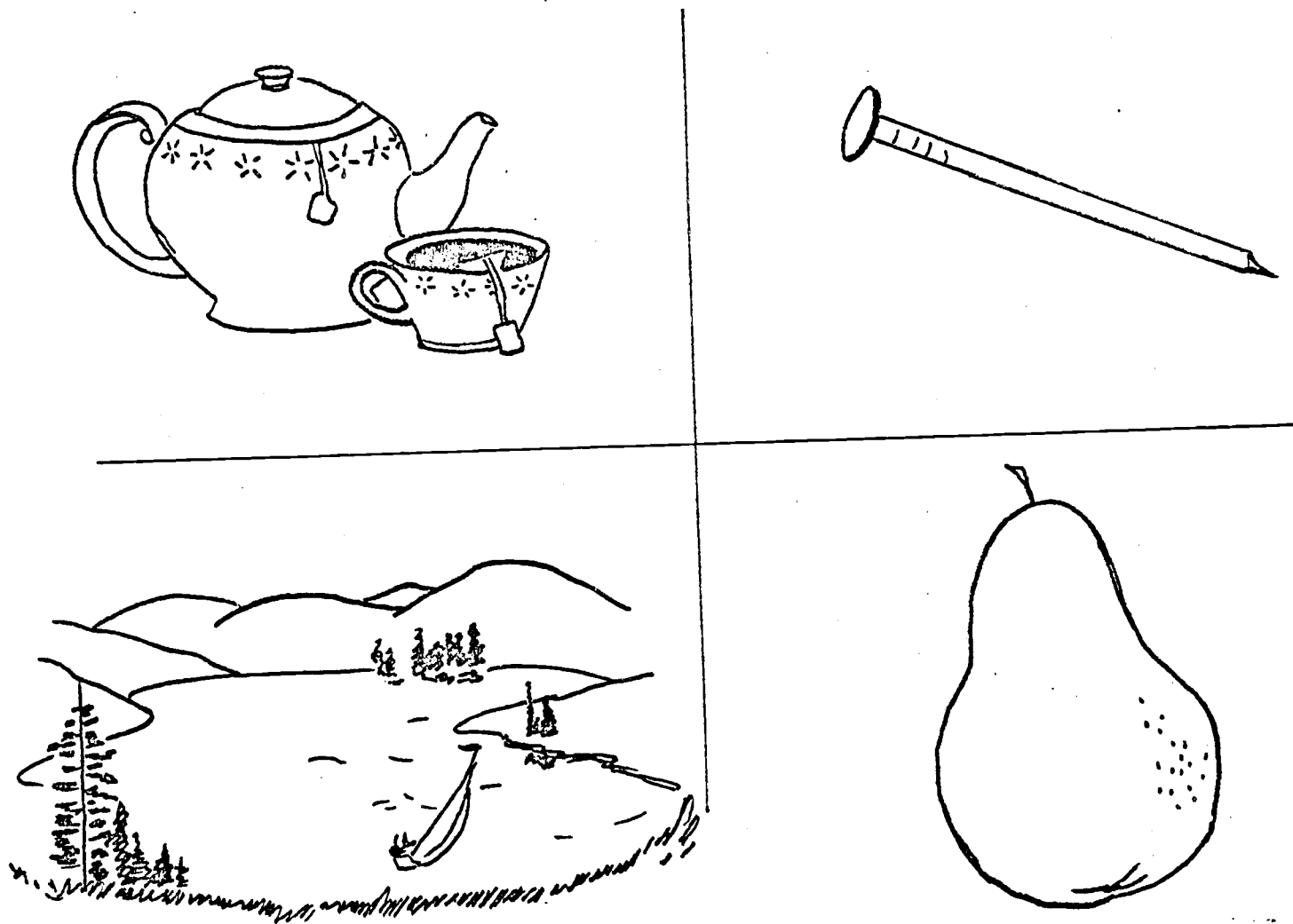


Plate GFW

Equipment Used to Administer Goldman, Fristoe, Woodcock
Test of Auditory Discrimination

Test set including cassette tape.

2 headsets: 610-1 Telex 6000 (one set for subject,
one set for examiner)

Sound level meter: BSR Electronics, Model 8A4
capable of measuring 60-116 dB at two speeds

Junction box model PB-1 by
Audiotronics Corporation
North Hollywood, CA

Cassette tape 'deck' - Panasonic RQ 4135
1975 model

DEVEREUX ELEMENTARY SCHOOL BEHAVIOR RATING SCALE *

George Spivack, Ph.D. and Marshall Swift, Ph.D.

Devereux Foundation Institute for Research and Training

Student's Name _____ Teacher's Name _____

Student's Sex _____ Age _____ Academic Subject _____

Grade _____ School _____ Date of Rating _____

RATING GUIDE

- | | |
|---|---|
| 1. Base rating on student's <u>recent and current</u> behavior. | Consider only the behavior of the student over the past month. |
| 2. Compare the student with normal children his age. | The standard for comparison should be the average youngster in the normal classroom situation. |
| 3. Base rating on your own experience with the student. | Consider only your own impression. As much as possible, ignore what others have said about the student and their impressions. |
| 4. Consider each question <u>independently</u> . | Make no effort to describe a consistent behavioral picture or personality. It is known that children may show seemingly contradictory behavior. |
| 5. Avoid interpretations of "unconscious" motives and feelings. | As much as possible, base ratings on outward behavior you actually observe. Do not try to interpret what might be going on in the student's mind. |
| 6. Use <u>extreme</u> ratings whenever warranted. | Avoid tending to rate near the middle of all scales. Make use of the full range offered by the scales. |
| 7. Rate each item quickly. | If you are unable to reach a decision, go on to the next item and come back later to those you skipped. |
| 8. Rate <u>every</u> question. | Attempt to rate each item. If you are unable to rate a particular item because it is not appropriate to the child in question, or because of lack of information, circle the item number. |

YOU ARE GOING TO RATE THE OVERT BEHAVIOR OF A STUDENT. FOR ITEMS 1-26 USE THE RATING SCALE BELOW. WRITE YOUR RATING (NUMBER) FOR EACH ITEM IN THE BOX TO THE LEFT OF THE ITEM NUMBER.

Very frequently 5	Often 4	Occasionally 3	Rarely 2	Never 1
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COMPARED WITH THE AVERAGE CHILD IN THE NORMAL CLASSROOM SITUATION, HOW OFTEN DOES THE CHILD...

Rating	Item	Rating	Item
<input type="checkbox"/>	1. Start working on something before getting the directions straight?	<input type="checkbox"/>	14. Tell stories which are exaggerated and untruthful?
<input type="checkbox"/>	2. Say that the teacher doesn't help him enough (i.e., won't show him how to do things, or answer his questions)?	<input type="checkbox"/>	15. Give an answer that has nothing to do with a question being asked?
<input type="checkbox"/>	3. Bring things to class that relate to current topic (e.g., exhibits, collections, articles, etc.)?	<input type="checkbox"/>	16. Break classroom rules (e.g., throw things, mark up desk or books, etc.)?
<input type="checkbox"/>	4. Tell stories or describe things in an interesting and colorful fashion (e.g., has an active imagination, etc.)?	<input type="checkbox"/>	17. Interrupt when the teacher is talking?
<input type="checkbox"/>	5. Speak disrespectfully to teacher (e.g., call teacher names, treat teacher as an equal, etc.)?	<input type="checkbox"/>	18. Quickly lose attention when teacher explains something to him (e.g., becomes fidgety, looks away, etc.)?
<input type="checkbox"/>	6. Initiate classroom discussion?	<input type="checkbox"/>	19. Offer to do things for the teacher (e.g., erase the board, empty the pencil sharpener, open the door, get the mail, etc.)?
<input type="checkbox"/>	7. Act defiant (i.e., will not do what he is asked to do, says: "I won't do it")?	<input type="checkbox"/>	20. Makes you doubt whether he is paying attention to what you are doing or saying (e.g., looks elsewhere, has blank stare or faraway look, etc.)?
<input type="checkbox"/>	8. Seek out the teacher before or after class to talk about school or personal matters?	<input type="checkbox"/>	21. Introduce into class discussion personal experiences or things he has heard which relate to what is going on in class?
<input type="checkbox"/>	9. Belittle or make derogatory remarks about the subject being taught (e.g., "spelling is stupid")?	<input type="checkbox"/>	22. Get openly disturbed about scores on a test (e.g., may cry, get emotionally upset, etc.)?
<input type="checkbox"/>	10. Get the point of what he reads or hears in class?	<input type="checkbox"/>	23. Show worry or get anxious about knowing the "right" answers?
<input type="checkbox"/>	11. Have to be reprimanded or controlled by the teacher because of his behavior in class?	<input type="checkbox"/>	24. Look to see how others are doing something before he does it (e.g., when teacher gives a direction, etc.)?
<input type="checkbox"/>	12. Poke, torment, or tease classmates?	<input type="checkbox"/>	25. Complain teacher never calls on him (e.g., that teacher calls on others first, etc.)?
<input type="checkbox"/>	13. Annoy or interfere with the work of his peers in class?	<input type="checkbox"/>	26. Make irrelevant remarks during a classroom discussion?

FOR ITEMS 27-47 USE THE RATING SCALE BELOW:

Extremely	Distinctly	Quite a bit	Moderately	A little	Very slightly	Not at all
7	6	5	4	3	2	1

COMPARED WITH THE AVERAGE CHILD IN THE NORMAL CLASSROOM SITUATION, TO WHAT DEGREE IS THE CHILD...

<u>Rating</u>	<u>Item</u>	<u>Rating</u>	<u>Item</u>
<input type="checkbox"/>	27. Unable to change from one task to another when asked to do so (e.g., has difficulty beginning a new task, may get upset or disorganized, etc.)?	<input type="checkbox"/>	35. Able to apply what he has learned to a new situation?
<input type="checkbox"/>	28. Oblivious to what is going on in class (i.e., not "with it," seems to be in own "private" closed world)?	<input type="checkbox"/>	36. Sloppy in his work (e.g., his products are dirty or marked up, wrinkled, etc.)?
<input type="checkbox"/>	29. Reliant upon the teacher for directions and to be told how to do things or proceed in class?	<input type="checkbox"/>	37. Likely to know the material when called upon to recite in class?
<input type="checkbox"/>	30. Quickly drawn into the talking or noise-making of others (i.e., stops work to listen or join in)?	<input type="checkbox"/>	38. Quick to say work assigned is too hard (e.g., "you expect too much," "I can't get it," etc.)?
<input type="checkbox"/>	31. Outwardly nervous when a test is given?	<input type="checkbox"/>	39. Responsive or friendly in his relationship with the teacher in class (vs. being cool, detached or distant)?
<input type="checkbox"/>	32. Unable to follow directions given in class (i.e., need precise directions before he can proceed successfully)?	<input type="checkbox"/>	40. Likely to quit or give up when something is difficult or demands more than usual effort?
<input type="checkbox"/>	33. Sensitive to criticism or correction about his school work (e.g., gets angry, sulks, seems "defeated", etc.)?	<input type="checkbox"/>	41. Slow to complete his work (i.e., has to be prodded, takes excessive time)?
<input type="checkbox"/>	34. Prone to blame the teacher, the test, or external circumstances when things don't go well?	<input type="checkbox"/>	42. Swayed by the opinion of his peers?
		<input type="checkbox"/>	43. Difficult to reach (e.g., seems pre-occupied with his own thoughts, may have to call him by name to bring him out of himself)?
		<input type="checkbox"/>	44. Unwilling to go back over his work?

COMPARED WITH THE AVERAGE CHILD IN THE NORMAL CLASSROOM SITUATION, TO WHAT DEGREE DOES THE CHILD...

<input type="checkbox"/>	45. Like to be close to the teacher (e.g., hug or touch the teacher, sit or stand next to teacher, etc.)?	<input type="checkbox"/>	47. Rush through his work and therefore make unnecessary mistakes?
<input type="checkbox"/>	46. Have difficulty deciding what to do when given a choice between two or more things?		

DEVEREUX ELEMENTARY SCHOOL BEHAVIOR RATING SCALE *

George Spivack, Ph.D. and Marshall Swift, Ph.D.

Devereux Foundation Institute for Research and Training

DESB PROFILE

Student's Name _____ Teacher's Name _____



Student's Sex _____ Age _____ Academic Subject _____

Grade _____ School _____ Date of Rating _____

Behavior Factor	Factor Item Raw Scores	Tot'l Raw Sc.	Raw Score in Standard Score Units			
			-1SD	0	+1SD	+2SD
1. Classroom Disturbance	needs control 11 ____ 13 ____ interfere teases 12 ____ 30 ____ drawn in		CLASS DISTURB			
2. Impatience	starts 1 ____ 44 ____ go back sloppy 26 ____ 47 ____ rushes		IMPAT			
3. Disrespect-Defiance	disrespect 5 ____ 9 ____ subject defy t'ch'r. 7 ____ 16 ____ rules		DISRESPE DEFY			
4. External Blame	t'ch'r. help 2 ____ 34 ____ blames called on 25 ____ 38 ____ too hard		EXTERNAL BLAME			
5. Achievement Anxiety	test scores 22 ____ 31 ____ testing right ans. 23 ____ 33 ____ sensitive		ACHIEVE ANXIETY			
6. External Reliance	see others 24 ____ 42 ____ swayed rely t'ch'r. 29 ____ directions 32 ____ 46 ____ choices		EXTERNAL RELY			
7. Comprehension	understands 10 ____ 37 ____ recites applies 35 ____		COMPRE HENSION			
8. Inattentive - Withdrawn	lose attn. 18 ____ 28 ____ oblivious not attend. 20 ____ 43 ____ reachable		INATTENT WITHDR			
9. Irrelevant - Responsiveness	exagg. story 14 ____ 17 ____ interrupt answers 15 ____ 26 ____ irrelevant talk		IRRELEV RESP			
10. Creative Initiative	brings in 3 ____ 6 ____ start disc. act, imag. 4 ____ 21 ____ talk exper.		CREAT INITIAT			
11. Need Closeness to Teacher	seeks t'ch'r. 8 ____ 39 ____ friendly helps 19 ____ 45 ____ phys. close		NEED CLOSE TEACH			
Additional Items	27 Unable change					
	30 Quies					
	41 Slow Work					

APPENDIX C

Raw Data Used for Grouping Procedures

Age	Student		GFW %ile	CEFT	CEFT Grouping
7	A-1		2	5	low
7	B-1		3	8	
6	C-1		10	8	
7	D-1		16	13	
7	E-1		16	14	high
7	F-1		16	5	low
6	G-1		21	10	high
7	H-1		29	6	low
7	I-1		29	4	low
6	J-1		29	6	
6	K-1		29	5	low
7	L-1		30	13	
7	M-1		30	5	low
7	N-1		38	17	high
7	O-1		40	10	
7	P-1		40	5	low
7	Q-1		41	8	
7	R-1		41	4	low
7	S-1		42	17	high
6	T-1		44	7	
7	U-1		45	7	low
7	V-1		45	10	
7	W-1		48	3	low
6	X-1		48	12	high
6	Y-1		48	5	low
7	Z-1		48	9	
7	A-1.5		48	6	low
7	B-1.5		48	17	high
6	C-1.5		48	10	high
7	D-1.5		54	6	low
7	E-1.5		51	6	low
6	F-1.5		55	3	low
6	G-1.5		51	17	high
6	H-1.5		62	10	high

Grade 2

Age	Student		GFW %ile	CEFT	CEFT Grouping
7	A-2	↑ low ↓ mid ↓ high ↓	1-	15	high
9	B-2		1-	11	low
7	C-2		3	20	high
7	D 2		11	7	low
7	E 2		11	9	
8	F 2		13	8	
8	G 2		13	10	
7	H 2		16	18	high
7	I 2		16	12	
7	J 2		22	12	
7	K 2	↑ low ↓ mid ↓ high ↓	22	13	
8	L 2		27	7	low
8	M 2		27	8	
8	N 2		27	22	high
8	O 2		37	12	
8	P 2		48	18	high
7	Q 2		54	11	
7	R 2		54	7	low
7	S 2		54	5	low
8	T 2		74	5	low
8	U 2		88	20	high

Grade Three

Age	Student		GFW %ile	CEFT	CEFT Grouping
8	A-3	↑	1-	6	Low
8	B-3		1-	13	
8	C-3		5	11	
9	D-3		6	5	Low
9	E-3		18	13	Low
9	F-3		18	11	Low
8	G-3		19	10	
8	H-3	Low ↓	19	7	Low
8	I-3		27	8	
8	J-3		27	12	
9	K-3		27	12	Low
9	L-3		30	13	Low
8	M-3	↑	37	10	
8	N-3		37	4	Low
9	O-3		42	12	Low
10	P-3		45	6	Low
8	Q-3		48	2	Low
9	R-3		52	20	High
9	S-3		52	24	High
9	T-3	mid ↓	52	20	High
9	U-3		52	8	Low
10	V-3		59	3	Low
8	W-3		60	21	High
8	X-3		60	20	High
9	Y-3		79	21	High
9	Z-3		79	9	Low
9	A-3.5	↓	87	19	

Grade Four

Age	Student		GFW %ile	CEFT	CEFT Grouping
9	A 4	↑	1	8	low
10	B 4		3	17	
9	C 4		4	13	low
9	D 4		4	6	low
9	E 4		11	19	
10	F 4		15	15	
10	G 4		15	17	
10	H 4		15	19	
9	I 4		18	7	low
10	J 4		22	10	low
10	K 4	↓	22	21	high
10	L 4		22	17	
10	M 4		22	14	
10	N 4		22	16	
10	O 4		22	12	low
9	P 4		31	17	
9	Q 4		31	12	low
9	R 4		31	20	high
9	S 4		31	15	
10	T 4		31	10	low
10	U 4	↑	31	13	low
10	V 4		31	15	
9	W 4		42	18	
9	X 4		42	20	high
9	Y 4		42	12	low
9	Z 4		42	21	high
9	A 4.5		42	21	high
10	B 4.5		45	6	low
10	C 4.5		45	19	
10	D 4.5		45	13	low
9	E 4.5	↓	52	12	low
9	F 4.5		52	18	
9	G 4.5		52	12	low

Age	Student		GFW % ile	CEFT	CEFT Grouping
11	A 5	↑	1-	19	
11	B 5		1-	16	
10	C 5		2	22	high
10	D 5		3	20	high
11	E 5		4	20	
11	F 5 <i>mid</i>	Low ↓	4	21	high
11	G 5		4	19	
11	H 5		9	19	
10	I 5		9	14	
10	J 5		15	11	low
11	K 5		17	23	high
11	L 5		17	22	high
11	M 5		27	21	high
10	N 5		31	23	high
10	O 5		31	17	
10	P 5		31	19	
10	Q 5		31	19	
11	R 5	mid ↑	42	-	
11	S 5		42	11	low
10	T 5		45	14	
10	U 5		45	21	high
10	V 5		45	18	
12	W 5		55	23	high
10	X 5		59	25	high*
10	Y 5		59	21	high
11	Z 5	high ↑	73	16	
11	A 5.5		73	14	low
11	B 5.5		72	8	low
11	C 5.5		73	22	high
10	D 5.5		76	16	
10	E 5.5		76	19	

Grade Six

Age	Student		GFW %ile	CEFT	CEFT Grouping
12	A 6	↑ Low ↓	1-	17	
11	B 6		1-	22	high
12	C 6		1-	17	
12	D 6		1-	17	
11	E 6		1-	20	
12	F 6		1	25	high *
12	G 6		3	10	Low
12	H 6		3	21	high
11	I 6		4	21	high
11	J 6		4	15	Low
11	K 6		4	21	high
11	L 6		9	19	
12	M 6		17	17	
12	N 6		17	22	high
12	O 6		17	16	
12	P 6		17	24	high
12	Q 6		17	13	Low
12	R 6		27	17	
12	S 6		27	18	
12	T 6		27	23	high
12	U 6		27	24	high
12	V 6		27	24	high
12	W 6	↑ mid ↓	40	14	Low
12	X 6		40	23	high
12	Y 6		40	25	high *
11	Z 6		42	20	
11	A 6.5		42	10	Low
11	B 6.5		42	17	
12	C 6.5		55	23	high
12	D 6.5		55	22	high
11	E 6.5		57	18	

APPENDIX D

Computer Output

Summary of Findings

ITEMS	No.	AUDITORY		VISUAL		COMBINED AV		BEHAVIORS RESULTING IN:
		A _p	A _n	V _p	V _n	AV _p	AV _n	
needs control	11	64						Classroom Disturbance
teases	12	6I			IT	O		
interfere	13	6I4				O		
drawn in	30	6I						
starts	1			1	5I		I	Impatience
sloppy	36					O		
go back	44					PO		
rushes	47	4		3P		P1O		
disrespect	5	54						Disrespect- Defiance
defy teacher	7					O		
subject	9	4				O		
rules	16	6						
teacher help	2	4		1	5	O		External Blame
called on	25					O		
blames	34	4				O		
too hard	38		AP					
test scores	22			I				Achievement- Anxiety
right answ.	23		APIT					
testing	31	4		P				
sensitive	33	24				O		
see others	24	3O4		24O6I		O		External Reliance
rely on t'ch'r	29			245O6		O		
directions	32	24		5		6O		
swayed	42			T		1PO		
choices	46							Comprehension
understands	10				TOPV345I		AV6O	
applies	35		O		OIV3456		O	
recites	37				TOPV345I		1	
lose attn.	18			4T		PO		Inattentive- Withdrawn
not atnd.	20	4				O		
oblivious	28	2				PO		
reachable	43					PO		
exagg. story	14	4			5	O		Irrelevant- Responsiveness
answers	15			14P		PO		
interrupt	17	I			5	O		
irrel talk	26			1		O		
brings in	3	5	4		VTP	I		Creative Initiative
act. imag.	4		4		V3P			
start disc.	6		2		VTI			
talk exper.	21				V			
seeks t'ch'r	8		4	6				Needs Closeness to Teacher
helps	19			6I				
friendly	39							
phys. close	45			4				
unable change	27					O		Additional Items
quits	40	64				O		
slow work	41			I		O		

SSS	AAA	V	V	EEEE	FFFF	000	RRR	M	M
S	A	V	V	E	F	0	R	M	M
S	A	V	V	E	F	0	R	M	M
SSS	AAAA	V	V	EEEE	FFFF	0	RRR	M	M
S	A	V	V	E	F	0	R	M	M
SSS	A	V	V	EEEE	F	000	R	M	M

AAA	pppp	AAA	N	N
A	p	A	N	N
A	p	A	N	N
AAAA	pppp	AAAA	NN	NN
A	p	A	N	NN
A	p	A	N	N
A	p	A	N	N

ITEM	TVALUE	DF	MEAN1	VAR1	N1	MEAN2	VAR2	N2	00001
1	.638	34.653	2.567	1.144	97	2.400	1.417	25	00002
2	-1.145	32.754	1.753	1.167	97	2.040	1.743	25	00003
3	1.137	37.761	2.515	1.544	97	2.235	1.530	25	00004
4	.749	37.322	3.205	1.549	97	2.060	2.040	25	00005
5	.531	40.012	1.701	1.295	97	1.560	1.690	25	00006
6	.756	36.243	2.670	2.203	97	2.417	2.080	24	00007
7	-0.372	41.541	1.907	1.523	97	2.000	1.167	25	00008
8	-0.473	38.252	2.445	2.070	97	3.120	1.943	25	00009
9	-0.235	41.463	2.286	1.653	97	2.345	1.210	25	00010
10	-0.539	41.165	3.773	1.261	97	3.925	1.993	25	00011
11	.105	35.964	2.711	1.624	97	2.580	1.810	25	00012
12	.312	41.331	2.215	1.380	97	2.325	1.683	25	00013
13	1.218	38.393	2.598	1.980	97	2.249	1.523	25	00014
14	-0.533	50.484	1.615	.787	96	1.200	1.583	25	00015
15	-0.450	36.624	1.856	.979	97	1.965	1.040	25	00016
16	-0.072	42.022	2.103	1.364	97	2.120	1.027	25	00017
17	.514	46.840	2.381	1.759	97	2.240	1.440	25	00018
18	-0.430	37.988	2.349	1.227	97	2.445	1.173	25	00019
19	-0.314	37.326	2.845	1.753	97	3.880	1.693	25	00020
20	-0.063	36.969	2.701	1.733	97	2.725	1.743	25	00021
21	.731	34.878	3.052	1.715	97	2.800	2.083	25	00022
22	-0.338	40.409	1.917	1.004	96	2.000	.833	25	00023
23	-2.732	30.654	2.372	1.213	97	2.725	1.043	25	00024
24	.619	38.096	2.722	1.411	97	2.560	1.340	25	00025
25	.034	42.520	1.650	1.123	97	1.640	.823	25	00026
26	.263	36.983	1.300	1.344	97	1.520	1.410	25	00027
27	-0.154	39.626	3.219	3.693	96	3.280	3.043	25	00028
28	.158	39.847	2.741	3.352	96	2.720	2.877	25	00029
29	-1.386	35.220	3.636	3.315	96	4.160	3.473	25	00030
30	.623	35.267	4.232	3.733	96	4.000	4.500	25	00031
31	-1.923	40.230	2.156	1.291	96	2.400	1.683	25	00032
32	-0.723	36.139	3.137	3.566	96	3.360	3.990	25	00033
33	-0.105	36.078	3.115	3.429	96	3.160	3.807	25	00034
34	-1.155	36.411	2.355	3.645	96	2.880	3.943	25	00035
35	-0.113	33.177	4.545	2.168	96	4.720	3.127	25	00036
36	.277	37.168	2.958	3.556	96	2.840	3.040	25	00037
37	.367	36.324	4.598	2.559	96	4.560	2.423	25	00038
38	-2.216	32.221	2.396	2.536	96	3.360	4.673	25	00039
39	1.128	32.065	5.471	1.768	96	5.120	2.610	25	00040
40	-0.033	36.471	3.242	3.909	96	3.280	4.127	25	00041
41	-0.341	35.621	3.535	4.232	96	3.560	4.873	25	00042
42	.669	41.394	3.531	3.452	96	3.280	2.827	25	00043
43	-0.745	36.840	2.845	3.345	96	3.290	3.543	25	00044
44	-0.234	34.914	3.155	3.549	96	3.255	4.500	25	00045
45	-0.320	35.468	3.365	3.897	96	3.890	4.583	25	00046
46	-1.245	37.314	2.959	2.641	96	3.440	2.673	25	00047
47	.807	37.465	3.083	3.172	96	2.760	3.190	25	00048

SSS	AAA	V	V	EEEE	FFFF	000	RRR	M	M	
S	A	V	V	EEEE	F	0	0	M	M	
SSS	AAA	V	V	EEEE	FFFF	0	0	M	M	
S	A	V	V	EEEE	F	0	0	M	M	
SSS	A	V	V	EEEE	F	000	RRR	M	M	::
<hr/>										
V	V	N	N	V	V	PPP	000	AAA	TTT	
V	V	N	N	V	V	P	0	A	A	T
V	V	N	N	V	V	P	0	A	A	T
V	V	N	N	V	V	PPP	0	AAA	AAA	T
V	V	N	N	V	V	P	0	A	A	T
V	V	N	N	V	V	P	0	A	A	T
V	V	N	N	V	V	P	000	A	A	T

ITEM	TVALUE	OF	MEAN1	VAR1	N1	MEAN2	VAR2	N2	00001
1	1.735	30.168	2.772	1.467	54	2.356	.653	53	00001
2	-1.736	25.27*	1.426	1.434	54	1.710	1.102	53	00002
3	3.016	11.15*	2.750	1.360	54	1.691	1.091	53	00003
4	-2.343	13.10*	3.500	1.388	54	2.987	1.090	53	00004
5	-1.233	17.14*	1.633	1.637	54	1.677	1.374	53	00005
6	-2.334	16.33*	1.633	2.274	54	1.677	1.374	53	00006
7	-0.464	18.56*	1.753	1.243	54	1.677	1.374	53	00007
8	-1.433	16.10*	3.130	2.333	54	1.677	2.331	53	00008
9	-3.130	12.53*	2.552	1.251	54	2.097	1.456	53	00009
10.01	-3.130	12.75*	5.437	1.651	54	1.456	1.142	53	00010
11	-6.472	9.72*	2.611	2.031	54	2.720	1.778	53	00011
12	1.211	13.36*	2.273	1.583	54	2.916	1.093	53	00012
13	-0.335	16.72*	2.426	1.759	54	2.916	1.647	53	00013
14	-0.270	13.30*	1.519	.669	54	1.620	1.837	53	00014
15	-1.512	13.69*	1.511	.669	54	1.837	1.020	53	00015
16	.513	11.11*	2.167	1.387	54	2.015	1.333	53	00016
17	.513	12.29*	2.370	1.703	54	2.226	1.689	53	00017
18	-2.334	12.60*	2.037	1.158	54	2.452	1.235	53	00018
19	-1.331	12.60*	2.537	1.612	54	2.000	1.633	53	00019
20	-3.130	12.25*	2.537	2.062	54	2.000	1.887	53	00020
21	-2.333	12.32*	3.353	1.412	54	2.866	1.952	53	00021
22	-1.447	12.11*	1.736	.656	54	2.043	1.129	53	00022
23	-1.245	11.92*	2.259	1.177	54	2.210	1.185	53	00023
24	-1.245	10.93*	2.259	1.345	54	2.677	1.271	53	00024
25	-1.245	12.93*	1.426	.666	54	1.624	1.856	53	00025
26	-0.946	13.12*	1.981	1.452	54	2.080	1.279	53	00026
27	-0.946	13.12*	2.225	3.617	54	3.081	4.010	53	00027
28	-0.313	13.34*	2.513	2.335	54	2.520	3.844	53	00028
29	-2.335	12.17*	2.735	2.935	54	3.431	3.303	53	00029
30	-0.946	11.75*	3.870	4.304	54	3.203	4.154	53	00030
31	-2.174	11.73*	1.852	3.343	54	2.334	2.097	53	00031
32	-1.217	10.77*	2.453	3.355	54	2.883	3.333	53	00032
33	-1.238	13.73*	2.444	3.606	54	3.032	3.633	53	00033
34	-0.535	13.54*	2.148	2.843	54	3.323	3.271	53	00034
35	-2.243	11.74*	2.315	2.371	54	2.561	2.359	53	00035
36	-0.246	13.73*	2.527	2.857	54	2.700	3.273	53	00036
37.41	3.538	13.11*	5.567	1.831	54	2.524	3.363	53	00037
38	-1.152	11.18*	2.037	1.223	54	2.387	3.520	53	00038
39	-1.241	12.53*	5.533	1.382	54	2.274	1.809	53	00039
40	-1.319	12.27*	2.415	3.017	53	3.081	4.610	52	00040
41	-1.475	11.36*	2.733	4.450	54	3.333	4.457	52	00041
42	-1.537	10.67*	2.977	3.713	54	3.587	3.298	52	00042
43	-0.335	13.14*	2.704	3.644	54	3.065	4.694	52	00043
44	-0.335	12.73*	2.556	3.437	54	2.661	3.277	52	00044
45	.513	13.14*	3.241	3.771	54	2.384	4.180	52	00045
46	-0.701	13.73*	3.611	2.053	54	2.495	2.454	52	00046
47	-1.038	13.23*	2.556	2.780	54	2.919	3.616	62	00047

ITEM	TVALUE	DF	MEAN1	VAR1	N1	MEAN2	VAR2	N2
1	-1.0000	7.801	2.429	1.143	28	3.0000	2.0000	7
2	1.7222	21.291	1.750	1.083	28	1.286	2.233	7
3	.292	9.384	2.143	1.386	28	2.0000	1.333	7
4	.609	7.767	3.179	2.004	28	2.714	3.571	7
5	.368	9.642	1.607	1.433	28	1.429	1.286	7
6	-0.094	7.980	2.736	2.175	28	2.857	3.476	7
7	-0.121	8.731	1.929	1.698	28	2.0000	2.0000	7
8	-0.643	10.908	2.893	2.840	28	3.286	1.905	7
9	.388	12.538	2.179	1.930	28	2.0000	1.000	7
10	-2.523	19.169	3.714	1.101	28	4.429	2.286	7
11	.995	9.591	2.714	1.989	28	2.143	1.810	7
12	.313	9.599	2.000	1.259	28	1.857	1.143	7
13	1.902	12.268	2.786	2.101	28	1.857	1.143	7
14	-0.141	8.805	1.786	1.286	28	1.857	1.476	7
15	.768	8.880	2.071	1.106	28	1.714	1.238	7
16	-0.248	9.977	1.893	1.210	28	2.0000	1.000	7
17	.890	9.790	2.321	1.708	28	1.857	1.476	7
18	.644	8.423	2.500	1.370	28	2.143	1.810	7
19	0	9.570	3.143	1.979	28	3.143	1.810	7
20	-0.329	7.661	2.464	1.888	28	2.714	3.571	7
21	.740	8.817	2.929	2.291	28	2.429	2.619	7
22	.763	23.246	1.929	1.254	28	1.714	2.238	7
23	-1.333	10.645	2.000	1.333	28	2.571	2.952	7
24	.407	8.522	2.643	1.275	28	2.429	1.619	7
25	.076	8.458	1.607	1.988	28	1.571	1.286	7
26	.810	9.571	1.954	1.443	28	1.571	1.236	7
27	-0.042	9.405	2.964	4.184	28	3.0000	4.0000	7
28	.136	10.278	2.536	4.258	28	2.429	3.286	7
29	.697	10.655	3.500	3.741	28	3.0000	2.667	7
30	.973	8.906	4.036	4.332	28	3.143	4.810	7
31	.570	12.533	2.214	1.286	28	2.0000	2.667	7
32	.869	10.312	2.852	2.823	27	2.286	2.238	7
33	.268	8.360	3.107	3.803	28	2.857	5.143	7
34	-0.867	7.864	2.250	3.824	28	3.143	6.476	7
35	-0.168	7.656	4.714	2.360	28	4.857	4.476	7
36	.910	16.133	3.143	4.127	28	2.429	3.286	7
37	-0.773	8.324	4.714	2.360	28	5.286	3.238	7
38	-0.742	9.320	2.179	2.967	28	2.714	3.905	7
39	1.053	6.742	5.429	1.439	28	4.429	5.932	7
40	.411	9.169	3.071	4.143	28	2.714	4.238	7
41	-0.327	8.797	3.393	4.840	28	3.714	5.571	7
42	1.161	9.379	3.321	3.411	28	2.429	3.286	7
43	.642	8.567	2.607	3.433	28	2.571	4.286	7
44	.921	11.645	2.750	3.602	28	2.143	2.143	7
45	-0.632	8.029	2.071	3.995	28	1.714	6.238	7
46	-0.492	8.212	2.500	2.185	28	2.857	2.143	7
47	2.108	12.789	3.286	4.286	28	1.857	2.143	7

ITEM	TVALUE	DF	MEAN1	VAR1	N1	MEAN2	VAR2	N2
1	-3.219	95.000	2.217	.929	46	2.882	1.146	51
2	-.257	90.457	1.723	1.329	46	1.725	1.043	51
3	.125	94.825	2.522	1.322	46	2.490	1.775	51
4	.981	93.538	3.283	1.185	46	3.137	1.831	51
5	-0.221	92.733	1.674	1.380	46	1.725	1.243	51
6	-1.634	94.027	2.413	2.159	46	2.502	2.170	51
7	-.637	90.293	2.000	1.733	46	1.824	1.348	51
8	-0.125	94.994	2.826	1.880	46	2.863	2.281	51
9	-1.354	92.121	2.022	1.711	46	2.373	1.478	51
10	1.174	94.986	3.913	1.103	46	3.647	1.393	51
11	-1.572	94.992	2.500	1.411	46	2.902	1.770	51
12	-1.210	94.679	2.055	1.307	46	2.353	1.433	51
13	-1.247	94.998	2.413	1.492	46	2.765	1.824	51
14	-1.303	90.222	1.439	.845	45	1.725	.723	51
15	-3.336	95.909	1.522	.788	46	2.157	.975	51
16	-1.355	94.712	1.935	1.129	46	2.255	1.554	51
17	-2.821	92.662	2.000	1.200	46	2.725	2.043	51
18	-1.417	94.492	2.174	1.125	46	2.490	1.295	51
19	2.391	94.999	3.196	1.494	46	2.569	1.859	51
20	-2.268	94.473	2.391	1.355	46	2.980	1.940	51
21	-1.610	98.977	2.826	1.969	46	3.255	1.434	51
22	1.175	79.041	2.043	1.376	46	1.900	1.653	50
23	-0.427	94.562	2.922	1.177	46	2.118	1.266	51
24	-3.101	94.170	2.348	1.032	46	3.059	1.536	51
25	.693	89.288	1.739	1.308	46	1.588	.967	51
26	-1.871	94.145	1.761	1.297	46	2.196	1.321	51
27	-2.481	93.975	2.739	3.086	46	3.660	3.535	50
28	-0.890	93.808	2.609	2.910	46	2.940	3.772	50
29	-2.911	92.867	3.065	2.462	46	4.100	3.643	50
30	-4.836	93.626	3.391	2.999	46	5.120	3.128	50
31	-3.576	92.433	2.087	1.014	46	2.220	1.563	50
32	-3.264	85.050	2.522	2.033	46	3.714	4.375	49
33	-0.802	93.842	2.957	3.287	46	3.260	3.584	50
34	-0.933	93.626	2.174	3.569	46	2.540	3.723	50
35	1.023	91.055	4.804	1.583	46	4.500	2.704	50
36	-1.115	91.971	2.717	2.696	46	4.180	4.314	50
37	-0.767	93.875	4.565	1.985	46	4.800	2.531	50
38	-1.180	91.522	2.196	2.739	46	2.580	2.330	50
39	-0.615	89.023	5.391	2.066	46	5.566	1.517	49
40	-0.950	92.967	3.043	3.731	46	3.429	4.033	50
41	-1.407	93.288	3.196	3.450	46	3.780	4.869	50
42	-0.818	93.741	3.370	3.349	46	3.680	2.569	50
43	-1.555	93.574	2.587	2.781	46	3.160	2.770	50
44	-0.874	92.883	2.978	3.755	46	3.320	3.569	50
45	-0.492	93.149	3.261	3.975	46	3.460	3.886	50
46	-1.332	92.906	2.739	2.686	46	3.180	2.559	50
47	-1.485	93.907	2.804	2.961	46	3.340	2.290	50

ITEM	TVALUE	DF	MEAN1	VAP1	N1	MEAN2	VAR2	N2
1	-1.503	57.983	2.200	.929	35	2.556	.795	27
2	-0.460	58.532	1.657	1.173	35	1.778	.949	27
3	1.149	58.763	2.229	1.829	35	1.889	.949	27
4	-0.193	52.639	2.457	1.655	35	2.926	2.148	27
5	-0.161	58.379	1.657	1.467	35	1.704	1.140	27
6	.503	59.287	2.400	1.776	35	2.231	1.625	26
7	.881	58.473	2.085	1.610	35	1.815	1.311	27
8	-0.819	48.242	2.743	1.844	35	3.074	2.334	27
9	-0.300	59.893	2.057	1.761	35	2.148	1.131	27
10	1.574	44.473	4.000	.765	35	3.556	1.564	27
11	-0.844	55.928	2.600	1.776	35	2.889	1.795	27
12	1.939	54.477	2.229	1.358	35	1.741	.661	27
13	-0.193	52.042	2.600	1.482	35	2.667	1.923	27
14	.061	58.212	1.571	1.134	35	1.556	.949	27
15	-1.034	57.384	1.771	1.064	35	2.037	.960	27
16	.321	58.499	2.057	1.467	35	1.963	1.191	27
17	-0.399	57.035	2.171	1.558	35	2.296	1.447	27
18	-1.805	52.369	2.229	1.064	35	2.741	1.353	27
19	.125	53.227	3.000	1.529	35	3.000	1.846	27
20	-0.957	55.673	2.600	1.894	35	2.556	1.649	27
21	.072	53.306	2.057	1.997	35	3.000	1.623	27
22	-0.769	51.696	2.114	1.055	35	2.037	1.208	27
23	-2.315	58.694	2.400	1.045	35	2.333	1.385	27
24	-0.280	56.802	1.600	1.306	35	3.037	1.037	27
25	1.191	59.229	2.143	.894	35	1.667	.846	27
26	-1.125	54.915	2.829	1.655	35	1.815	.772	27
27	-0.515	53.052	2.514	3.852	35	3.407	4.174	27
28	-1.799	47.730	3.114	3.551	35	2.778	4.333	27
29	-2.015	56.566	3.457	2.457	35	3.963	4.114	27
30	-0.317	49.421	2.286	4.020	35	4.481	3.875	27
31	-2.074	41.215	2.457	1.739	35	2.407	2.635	27
32	-0.283	55.390	2.971	2.314	35	3.480	4.427	25
33	-1.289	49.443	2.057	3.617	35	3.111	2.795	27
34	.956	51.032	4.829	2.644	35	2.667	4.000	27
35	-1.365	50.237	2.496	2.029	35	4.444	2.795	27
36	-0.167	54.675	4.600	3.168	35	3.185	4.618	27
37	.202	59.926	2.429	2.306	35	4.667	2.538	27
38	-0.498	58.424	2.200	4.252	35	2.333	2.692	27
39	-0.742	55.431	2.914	1.588	35	5.370	1.627	27
40	-0.691	50.446	3.171	4.022	35	3.296	4.063	27
41	-1.204	54.649	3.143	3.793	35	3.556	5.410	27
42	-0.784	54.512	2.886	3.126	35	3.704	3.447	27
43	1.034	56.246	2.857	3.928	35	3.296	4.370	27
44	-1.022	47.435	2.743	4.597	35	2.407	1.558	27
45	-0.680	53.366	2.686	3.197	35	2.463	5.447	27
46	-0.556	54.801	2.800	2.281	35	2.963	2.729	27
47				3.518	35	3.074	3.840	27

ITEM	TVALUE	DF	MEAN1	VAR1	N1	MEAN2	VAR2	N2
1	-1.054	21.619	2.278	1.271	18	2.760	.900	10
2	.195	21.422	1.778	1.242	18	1.700	.900	10
3	.907	24.385	2.278	1.742	18	1.900	.767	10
4	-0.053	14.201	3.157	1.559	18	3.200	3.067	10
5	.803	25.834	1.722	1.977	18	1.400	.489	10
6	.216	16.615	2.833	2.029	18	2.700	2.678	10
7	1.993	25.508	2.222	2.183	18	1.400	.489	10
8	-0.421	13.190	2.778	1.948	18	3.100	4.767	10
9	-0.367	23.291	2.111	2.340	18	2.300	1.344	10
10	1.124	15.823	3.389	.928	18	3.400	1.378	10
11	-1.309	16.047	2.444	1.673	18	3.200	2.400	10
12	-1.840	25.659	2.111	1.752	18	1.800	.400	10
13	-1.294	17.500	2.500	1.912	18	3.300	2.233	10
14	-0.384	17.770	1.722	1.271	18	1.900	1.433	10
15	-0.997	25.983	1.944	1.467	18	2.300	.456	10
16	.731	22.482	2.000	1.412	18	1.700	.900	10
17	-0.512	16.780	2.222	1.595	18	2.500	2.056	10
18	-0.673	19.214	2.389	1.428	18	2.700	1.344	10
19	-0.142	14.662	3.111	1.516	18	3.200	3.067	10
20	.179	18.182	2.500	1.912	18	2.400	2.044	10
21	-0.696	18.379	2.778	2.301	18	3.200	2.400	10
22	1.368	25.998	2.111	1.634	18	1.600	.489	10
23	-0.346	20.319	1.944	1.467	18	2.100	1.211	10
24	-1.578	16.543	2.389	1.075	18	3.100	1.433	10
25	.028	19.842	1.611	1.075	18	1.600	.456	10
26	1.041	25.669	2.111	1.987	18	1.700	.456	10
27	-1.185	16.473	2.611	3.663	18	3.600	4.044	10
28	-1.260	19.793	2.611	4.605	18	2.400	4.044	10
29	-1.515	13.842	3.056	2.526	18	4.300	5.344	10
30	-2.199	20.043	3.444	4.026	18	5.100	5.344	10
31	.384	17.770	2.278	1.271	18	2.100	1.433	10
32	-0.995	13.370	2.611	2.487	18	3.333	3.900	10
33	.655	22.457	3.278	4.448	18	2.800	2.844	10
34	-0.494	18.341	2.111	3.869	18	2.500	4.056	10
35	1.753	14.371	5.111	1.634	18	4.000	3.111	10
36	-1.171	14.166	2.778	3.007	18	3.800	5.956	10
37	.287	19.487	4.778	2.414	18	4.600	2.489	10
38	-0.522	21.212	2.356	3.350	18	2.400	2.489	10
39	-0.667	25.312	5.333	2.000	18	5.500	.489	10
40	-0.442	19.493	2.944	4.408	18	2.300	4.011	10
41	-1.184	14.363	3.056	3.765	18	4.100	6.344	10
42	-0.584	18.396	3.167	3.441	18	3.200	3.600	10
43	.220	17.797	2.667	3.412	18	2.600	1.600	10
44	.366	25.921	2.833	4.853	18	2.600	1.600	10
45	-0.940	13.895	2.778	2.889	18	3.600	6.044	10
46	-0.485	14.820	2.389	1.781	18	2.700	3.122	10
47	-1.316	16.178	2.889	3.634	18	4.000	5.111	10

ITEM	TVALUE	DF	MEAN1	VAR1	N1	MEAN2	VAR2	N2
1	-0.839	10.451	2.143	1.143	7	2.538	.769	13
2	-2.182	8.387	2.857	2.143	7	1.538	.769	13
3	-0.515	16.078	1.714	.571	7	1.923	1.077	13
4	-0.014	11.483	3.143	3.143	7	3.154	2.641	13
5	.816	11.354	1.857	1.143	7	1.462	.936	13
6	-0.586	14.514	2.286	1.905	7	2.692	2.731	13
7	1.985	8.422	2.429	1.619	7	1.385	.590	13
8	1.156	14.695	2.857	2.143	7	2.000	3.167	13
9	1.016	9.137	2.286	1.905	7	1.692	.897	13
10	-0.025	10.663	3.857	1.143	7	4.154	.808	13
11	-0.201	11.286	2.857	2.476	7	3.000	2.000	13
12	.391	8.735	2.143	1.810	7	1.923	.744	13
13	-0.709	11.885	2.429	2.286	7	2.923	2.077	13
14	.815	11.443	2.143	1.476	7	1.692	1.231	13
15	.935	8.355	2.143	1.810	7	1.846	.641	13
16	1.113	6.841	2.000	2.000	7	1.385	.256	13
17	.411	11.756	2.571	1.952	7	2.308	1.731	13
18	.860	10.987	2.714	1.571	7	2.231	1.192	13
19	-0.608	16.053	2.143	1.476	7	2.538	2.769	13
20	1.078	9.667	2.571	1.952	7	1.923	1.077	13
21	.383	10.164	3.143	3.143	7	2.846	1.974	13
22	.892	8.533	1.857	1.143	7	1.462	.436	13
23	.979	11.466	2.429	1.286	7	1.923	1.077	13
24	1.088	11.599	3.143	1.476	7	2.538	1.269	13
25	1.432	8.688	2.286	1.905	7	1.462	.769	13
26	.216	8.271	1.714	1.238	7	1.615	.423	13
27	.247	14.137	3.286	2.905	7	3.077	3.910	13
28	-0.776	16.367	1.714	.571	7	2.231	4.692	13
29	1.940	14.372	4.571	2.619	7	3.000	3.667	13
30	-0.440	8.415	4.857	6.143	7	5.308	2.231	13
31	.887	12.821	2.143	1.143	7	1.692	1.231	13
32	2.150	7.620	3.857	5.476	7	1.833	1.242	13
33	1.566	10.961	4.000	4.333	7	2.538	3.269	13
34	.790	10.254	3.143	5.810	7	2.308	3.731	13
35	-0.771	9.770	4.100	5.333	7	4.769	3.026	13
36	.285	12.778	3.143	4.810	7	2.846	5.141	13
37	-0.562	7.520	5.429	2.286	7	5.769	.526	13
38	2.359	7.801	3.857	5.143	7	1.692	1.397	13
39	-0.445	10.164	5.143	4.143	7	5.538	2.603	13
40	1.676	9.483	3.857	5.143	7	2.231	2.692	13
41	1.496	12.323	5.000	5.333	7	3.385	5.256	13
42	-0.407	12.475	2.857	3.810	7	3.231	3.859	13
43	.953	11.755	3.286	4.238	7	2.385	3.756	13
44	.771	7.925	2.571	4.286	7	1.923	1.244	13
45	1.573	7.832	3.857	7.143	7	2.154	1.974	13
46	1.476	8.552	3.143	3.476	7	2.000	1.333	13
47	-0.613	13.409	2.857	4.143	7	3.462	4.936	13

LING/SHA,SLA*

JOB NO. 748165 07/22/75 2122PM TERMINAL 111

ITEM	TVALUE	DF	MEAN1	VAR1	N1	MEAN2	VAR2	N2
1	1.064	1.076	3.000	2.000	2	1.917	.447	12
2	.163	1.088	3.000	8.000	2	2.667	2.061	12
3	1.773	1.609	3.000	.500	2	2.500	.818	12
4	-2.745	1.754	1.500	.500	2	3.083	.992	12
5	.215	1.136	2.500	4.500	2	2.167	1.788	12
6	5.000	11.000	3.000	0	2	1.750	1.750	12
7	-0.107	1.158	2.500	4.500	2	2.667	2.061	12
8	.268	1.160	2.500	4.500	2	2.683	2.083	12
9	-0.458	1.410	2.000	2.000	2	2.500	2.273	12
10	.601	1.511	4.500	.500	2	4.167	.697	12
11	.591	1.145	3.500	4.500	2	2.583	1.592	12
12	.325	1.110	2.500	4.500	2	2.000	1.455	12
13	.271	1.103	2.500	4.500	2	2.083	1.355	12
14	.672	1.058	3.000	8.000	2	1.636	1.255	11
15	.447	1.554	1.500	.500	2	1.250	.750	12
16	1.034	1.254	3.000	2.000	2	1.917	1.174	12
17	.534	1.057	3.000	8.000	2	1.917	1.355	12
18	-0.875	1.084	1.500	.500	2	2.000	.939	12
19	-0.133	2.403	2.500	.500	2	2.583	1.720	12
20	-0.949	2.235	1.500	.500	2	2.083	1.538	12
21	.427	1.257	2.500	.500	2	2.250	1.114	12
22	-1.239	3.086	1.500	.500	2	2.333	2.424	12
23	-0.456	11.000	2.000	0	2	2.167	1.695	12
24	-1.088	1.318	1.500	.500	2	2.083	.447	12
25	-1.797	2.729	1.500	.500	2	2.667	2.061	12
26	.657	1.061	2.500	4.500	2	1.500	.818	12
27	-0.861	1.799	2.000	2.000	2	3.000	4.132	12
28	-2.644	11.000	1.000	0	2	2.583	3.725	12
29	-0.783	1.283	2.000	2.000	2	2.833	1.656	12
30	.449	1.089	4.000	8.000	2	3.083	2.083	12
31	-0.706	1.909	1.500	.500	2	1.917	1.174	12
32	-3.200	11.000	1.000	0	2	2.500	2.635	12
33	-3.510	11.000	1.000	0	2	3.250	4.532	12
34	-1.184	2.014	2.000	2.000	2	3.417	5.174	12
35	0.504	11.000	6.000	0	2	4.333	1.798	12
36	.635	1.025	4.000	18.000	2	2.083	1.355	12
37	1.387	2.550	5.500	.500	2	4.667	1.333	12
38	.323	1.127	4.000	8.000	2	3.333	2.970	12
39	-1.388	1.172	2.500	4.500	2	4.667	2.242	12
40	-1.041	1.298	2.500	4.500	2	4.167	3.788	12
41	.094	1.095	3.500	12.500	2	3.250	3.477	12
42	-0.075	1.052	3.000	2.000	2	3.083	2.992	12
43	.040	1.168	3.000	8.000	2	2.917	3.902	12
44	.412	1.548	4.000	18.000	2	3.750	2.558	12
45	.683	1.247	4.500	4.500	2	3.417	3.174	12
46	1.483	11.000	2.000	0	2	1.667	.666	12
47	.033	1.039	4.000	18.000	2	2.083	2.083	12

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— LING/THA, TLA.

JOB NO. 748165 07/22/75 3:20PM TERMINAL 111

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ITEM	TVALUE	DF	MEAN1	VAR1	N1	MEAN2	VAR2	N2
1	.462	2.295	2.667	4.333	3	2.167	1.242	12
2	.491	4.078	1.333	3.333	3	1.333	1.606	12
3	.491	2.154	2.000	3.000	3	1.500	1.455	12
4	.697	2.747	3.667	2.333	3	3.000	1.636	12
5	.0	4.078	1.667	1.333	3	1.667	2.424	12
6	-.186	3.072	2.667	4.333	3	2.917	4.265	12
7	-.209	3.994	1.667	1.333	3	1.833	2.333	12
8	-.663	7.980	2.333	3.333	3	2.667	1.697	12
9	.845	3.196	2.667	2.333	3	1.833	2.333	12
10	.388	5.162	4.333	3.333	3	4.167	1.874	12
11	.787	2.497	3.333	4.333	3	2.333	2.651	12
12	.250	3.239	2.333	2.333	3	2.083	2.629	12
13	.584	3.239	2.667	2.333	3	2.683	2.629	12
14	-1.629	11.909	1.000	0	3	1.583	1.533	12
15	-.950	8.260	1.333	3.333	3	1.833	1.788	12
16	.754	3.542	2.333	1.333	3	1.750	1.841	12
17	.421	3.854	2.333	1.333	3	2.000	2.182	12
18	-.724	3.966	2.000	1.000	3	2.500	1.727	12
19	.131	2.920	3.333	4.333	3	3.167	2.192	12
20	.186	2.876	2.667	2.333	3	2.533	1.902	12
21	-1.305	16.343	1.333	3.333	3	2.083	2.629	12
22	.971	2.613	2.333	2.333	3	1.417	1.336	12
23	2.500	2.000	2.667	1.333	3	1.000	0	12
24	-2.863	11.000	1.000	0	3	1.417	.265	12
25	-1.190	11.000	1.000	0	3	1.167	.333	12
26	.625	3.016	3.000	3.000	3	2.083	2.811	12
27	.874	2.530	4.000	7.000	3	2.583	3.538	12
28	.186	3.372	3.333	4.333	3	3.083	4.265	12
29	.742	2.236	4.667	10.333	3	3.250	2.386	12
30	.712	2.635	4.667	10.333	3	3.250	6.205	12
31	.623	2.277	2.333	2.333	3	1.583	1.629	12
32	.643	2.690	3.333	4.333	3	2.500	2.818	12
33	-.650	2.920	3.000	7.000	3	3.083	5.355	12
34	.667	2.684	3.000	7.000	3	2.000	4.545	12
35	.409	3.273	5.667	2.333	3	5.167	2.697	12
36	-.676	3.934	1.667	1.333	3	2.167	2.333	12
37	-.225	2.366	4.333	6.333	3	4.667	5.242	12
38	1.516	2.310	4.667	10.333	3	1.750	5.114	12
39	-.216	3.494	5.667	1.333	3	5.833	1.788	12
40	1.999	2.395	4.333	8.333	3	2.417	3.174	12
41	.503	2.743	4.000	7.000	3	3.167	4.879	12
42	.689	4.188	2.000	3.000	3	2.917	5.720	12
43	.484	2.588	3.333	6.333	3	2.583	3.538	12
44	.545	2.622	4.667	10.333	3	3.583	6.083	12
45	-1.060	11.000	1.000	0	3	1.167	.333	12
46	.898	2.369	5.667	5.333	3	2.417	1.902	12
47	-.591	4.845	2.333	1.333	3	2.833	3.242	12


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FFFFF   III   H   H   AAA
F       1     H   H   A   A
F       1     H   H   A   A
FFFF    1     H   H   A   A
F       1     H   H   A   A
F       1     H   H   A   A
F       III   H   H   A   A

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FFFFF   III   L   AAA
F       1     L   A   A
F       1     L   A   A
FFFF    1     L   A   A
F       1     L   A   A
F       1     L   A   A
F       III   LLLL A   A

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ITEM	TVALUE	DF	MEAN1	VAR1	N1	MEAN2	VAR2	N2
1	-0.225	7.424	2.500	1.500	6	2.625	.917	16
2	-.107	8.927	1.667	.667	6	1.625	.650	16
3	-3.362	13.717	1.667	.667	6	3.188	1.496	16
4	-0.664	7.785	2.667	2.267	6	3.125	1.583	16
5	-2.425	15.000	1.000	0	6	1.625	.783	16
6	-1.913	6.764	2.333	3.067	6	3.500	1.333	16
7	-.321	12.153	2.167	.967	6	2.000	1.733	16
8	-0.622	7.569	2.833	2.167	6	3.250	1.400	16
9	-0.791	13.387	2.333	.667	6	2.688	1.429	16
10	-.491	8.698	3.667	1.867	6	3.375	1.717	16
11	-0.183	9.518	2.833	1.367	6	2.938	1.529	16
12	-1.840	14.691	1.833	.967	6	2.625	1.450	16
13	-0.425	9.121	2.500	1.500	6	2.750	1.533	16
14	-2.615	13.898	1.167	.167	6	1.625	.383	16
15	-0.900	10.825	2.000	1.200	6	2.500	1.733	16
16	-0.898	14.517	2.333	.667	6	2.750	1.667	16
17	-1.697	11.971	1.833	1.367	6	2.875	2.383	16
18	-.706	9.429	3.000	1.200	6	2.625	1.317	16
19	-0.753	9.012	2.833	.967	6	3.188	.962	16
20	1.467	7.702	3.667	1.867	6	2.750	1.267	16
21	-1.491	6.339	2.500	2.700	6	3.563	.929	16
22	-0.138	6.722	2.000	1.200	6	2.067	.495	15
23	1.779	8.888	2.833	.967	6	2.000	.933	16
24	-1.305	11.639	2.833	.967	6	3.500	1.600	16
25	-1.331	19.119	1.333	.267	6	1.813	1.362	16
26	-1.715	19.879	1.667	.667	6	2.500	2.000	16
27	-.082	10.134	4.333	2.667	6	4.267	3.210	15
28	1.456	7.766	4.000	3.600	6	2.733	2.352	15
29	-0.445	10.476	4.000	3.200	6	4.400	4.114	15
30	-0.884	9.708	4.000	4.000	6	4.867	4.410	15
31	-.088	18.331	2.500	.300	6	2.467	1.410	15
32	-0.235	9.461	3.833	4.167	6	4.067	4.352	15
33	-0.676	8.727	3.500	3.900	6	4.133	3.410	15
34	-0.256	12.141	2.833	2.967	6	3.067	5.067	15
35	-.206	8.416	4.833	2.967	6	4.567	2.381	15
36	-0.442	10.616	3.167	3.767	6	3.600	4.971	15
37	-1.594	7.922	3.667	2.667	6	4.867	1.838	15
38	-0.994	17.886	2.167	.567	6	2.667	2.381	15
39	-1.149	7.447	4.833	2.167	6	5.600	1.257	15
40	-.152	9.995	4.000	3.600	6	3.857	3.978	14
41	-0.213	9.847	3.833	4.967	6	4.067	5.638	15
42	-.440	9.291	3.833	2.967	6	3.467	2.981	15
43	-.981	8.161	4.000	4.800	6	3.000	3.571	15
44	1.070	11.729	4.000	2.400	6	3.133	3.838	15
45	-1.870	6.529	3.833	3.367	6	5.333	1.238	15
46	-.529	8.062	4.333	2.667	6	3.933	1.924	15
47	-.303	9.151	3.167	2.567	6	2.933	2.495	15

LING/SXMR,SYLAP

JOB NO. 748165 07/22/75 3:32PM TERMINAL 111

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$55555$ $      $      $      $      $      $      $      $      $

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ITEM	TVALUE	UF	MEAN1	VAR1	N1	MEAN2	VAR2	N2
1	-1.187	6.048	2.600	1.300	5	3.273	1.351	2
2	.150	5.987	2.000	1.500	5	1.909	1.915	2
3	.110	5.643	2.400	2.300	5	2.318	1.942	2
4	-0.591	7.105	2.800	1.200	5	2.136	1.838	2
5	-0.535	5.919	1.000	1.800	5	1.955	1.760	2
6	-0.341	3.718	2.250	3.583	4	2.591	2.253	2
7	-1.556	14.482	1.400	.300	5	1.955	1.474	2
8	1.690	6.728	4.200	1.710	5	3.091	1.991	2
9	.113	8.123	2.600	.800	5	2.545	1.593	2
10	.115	7.593	3.600	.800	5	3.545	1.403	2
11	-2.831	21.445	1.800	.200	5	2.818	1.965	2
12	-4.156	15.369	1.600	.300	5	2.469	1.777	2
13	-3.282	17.797	1.400	.300	5	2.682	2.037	2
14	.829	4.541	2.400	2.300	5	1.818	.727	2
15	.717	5.355	2.400	.800	5	2.091	.563	2
16	-2.190	15.801	1.600	.300	5	2.409	1.682	2
17	-1.825	21.715	2.200	.200	5	2.804	2.028	2
18	-0.307	7.593	2.400	.800	5	2.545	1.453	2
19	2.001	5.581	3.600	2.300	5	2.136	1.647	2
20	-1.773	5.853	2.600	1.200	5	3.773	1.708	2
21	-0.132	6.399	3.200	1.200	5	3.273	1.446	2
22	1.373	12.836	2.200	.200	5	1.818	.823	2
23	1.571	6.775	3.200	1.200	5	2.318	1.656	2
24	-0.688	6.481	3.000	1.600	5	3.045	1.474	2
25	.322	9.894	1.600	.300	5	1.500	.833	2
26	-0.826	5.336	1.800	1.700	5	2.318	1.183	2
27	-1.125	8.137	2.800	1.700	5	3.591	2.396	2
28	-0.125	7.448	3.400	2.300	5	3.500	3.881	2
29	.666	5.347	4.600	2.800	5	4.545	2.641	2
30	-3.301	8.162	3.600	1.500	5	3.182	2.013	2
31	-1.290	6.648	3.200	1.700	5	2.364	1.766	2
32	-0.934	5.906	3.600	3.800	5	4.500	3.690	2
33	-0.699	5.861	3.000	3.500	5	3.091	2.326	2
34	1.287	5.294	3.600	4.300	5	2.318	2.894	2
35	-0.312	6.874	4.600	2.000	5	4.227	2.851	2
36	-0.678	8.155	2.600	1.800	5	3.091	3.615	2
37	-0.305	11.273	4.000	1.000	5	4.182	3.394	2
38	.439	5.682	3.400	2.700	5	3.045	2.331	2
39	.825	16.617	5.800	.200	5	5.545	1.212	2
40	-2.987	16.311	2.200	.700	5	3.064	4.123	2
41	-0.020	6.793	3.800	3.200	5	3.918	4.442	2
42	-0.869	7.371	3.400	2.300	5	4.091	3.851	2
43	-1.562	8.009	2.600	1.800	5	3.727	3.541	2
44	-2.176	6.495	2.600	2.300	5	4.273	2.874	2
45	-2.223	5.423	4.800	2.700	5	2.955	3.284	2
46	-0.673	8.566	2.200	1.200	5	3.364	2.623	2
47	-1.341	7.428	2.600	1.800	5	3.545	3.022	2


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SSS  H  H  V  V
S  S  H  H  V  V
S  S  H  H  V  V
SSS  H  H  H  H  V  V
S  S  H  H  V  V
S  S  H  H  V  V
SSS  H  H  V  V

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SSS  L  V  V
S  S  L  V  V
S  S  L  V  V
SSS  L  V  V
S  S  L  V  V
S  S  L  V  V
SSS  L  L  L  L  L  V

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ITEM	TVALUE	DF	MEAN1	VAR1	N1	MEAN2	VAR2	N2
1	-0.900	7.308	1.667	.667	6	2.200	1.200	5
2	-0.379	7.292	1.833	1.767	6	2.200	3.200	5
3	1.468	6.151	2.833	.567	6	1.800	1.700	5
4	1.997	6.654	2.833	1.367	6	1.800	.200	5
5	-0.943	8.238	1.667	1.467	6	2.400	1.800	5
6	.314	8.648	2.000	1.000	6	1.800	1.700	5
7	-1.807	8.604	1.667	1.467	6	3.000	1.500	5
8	-1.666	6.173	2.833	2.967	6	1.600	.300	5
9	-0.223	8.981	2.000	2.800	6	2.200	1.700	5
10	2.359	6.151	4.667	.267	6	3.600	.800	5
11	-1.442	8.484	2.167	2.567	6	3.600	2.800	5
12	-0.948	8.611	1.833	1.767	6	2.600	1.800	5
13	-1.030	8.978	1.833	1.767	6	2.600	1.300	5
14	-1.871	4.000	1.000	.0	6	2.400	2.800	5
15	-1.372	4.000	1.000	.0	6	1.800	1.700	5
16	-1.472	7.823	1.333	1.367	6	3.000	2.600	5
17	-2.331	6.151	1.333	.667	6	3.000	2.000	5
18	-1.636	6.595	1.500	.700	6	2.200	1.700	5
19	1.964	6.161	3.000	2.600	6	1.800	.200	5
20	-1.372	6.634	1.667	1.467	6	3.800	3.500	5
21	.429	9.926	2.500	1.500	6	2.200	1.200	5
22	.459	8.969	1.333	.267	6	1.200	.200	5
23	-0.266	8.557	1.667	.667	6	1.800	.700	5
24	-2.566	8.643	1.500	.700	6	2.800	1.700	5
25	-0.216	8.870	1.333	1.767	6	2.000	1.500	5
26	-2.664	4.000	1.000	.0	6	2.400	2.300	5
27	-1.215	7.784	2.500	2.800	6	3.400	4.300	5
28	-0.112	5.469	2.000	1.600	6	2.800	7.200	5
29	-2.533	8.747	1.667	1.067	6	3.000	.500	5
30	-0.405	7.550	2.833	3.367	6	4.000	5.500	5
31	-0.531	5.539	1.500	.700	6	2.000	3.000	5
32	-1.366	4.850	1.500	.700	6	3.000	5.500	5
33	-1.124	6.350	2.000	2.800	6	3.600	7.800	5
34	-0.924	8.342	1.833	2.567	6	2.500	1.300	5
35	.0	8.991	5.000	1.600	6	5.000	1.000	5
36	-1.065	6.769	2.000	2.800	6	3.400	6.300	5
37	.666	7.378	5.000	1.600	6	4.400	2.800	5
38	-0.926	8.685	2.500	3.967	6	3.600	3.800	5
39	1.286	6.940	4.833	4.567	6	3.600	.800	5
40	-0.555	8.278	2.500	3.967	6	3.200	4.700	5
41	-1.159	8.778	2.667	6.667	6	4.200	3.200	5
42	-0.694	8.836	2.833	4.567	6	3.600	2.300	5
43	-1.221	8.999	2.167	3.367	6	3.400	2.300	5
44	-1.133	7.183	2.000	2.800	6	3.400	5.300	5
45	1.951	7.098	3.833	4.167	6	2.400	.800	5
46	.645	8.690	1.667	.667	6	1.400	.300	5
47	-0.743	7.782	2.167	4.167	6	3.200	6.200	5

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TTTTT H H V V      TTTTT L      V V
T H H V V      T L      V V
T H H V V      T L      V V
T H H H H H V V      T L      V V
T H H V V      T L      V V
T H H V V      T L      V V
T H H V V      T L L L L L V

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ITEM	TVALUE	DF	MEAN1	VAR1	N1	MEAN2	VAR2	N2
1	1.145	7.383	2.833	2.167	6	2.071	1.148	14
2	-0.236	9.923	1.333	.667	6	1.429	1.725	14
3	1.446	8.193	2.500	1.900	6	1.571	1.341	14
4	2.734	13.962	4.167	.967	6	2.643	2.593	14
5	.166	13.374	1.667	1.067	6	1.571	2.110	14
6	1.555	8.412	3.500	3.100	6	2.214	2.335	14
7	.323	8.054	2.333	3.067	6	2.071	2.671	14
8	1.694	7.929	3.000	2.600	6	2.286	1.297	14
9	-0.111	10.804	2.000	1.600	6	2.371	2.071	14
10	3.685	13.000	5.000	0	6	4.286	.527	14
11	.783	7.444	2.833	4.167	6	2.571	2.264	14
12	.0	8.315	2.500	3.100	6	2.500	2.269	14
13	.239	9.140	2.833	2.967	6	2.643	2.709	14
14	-0.967	17.745	1.167	.167	6	1.500	1.346	14
15	.203	10.235	1.833	1.367	6	1.714	1.604	14
16	-0.435	8.397	1.667	2.667	6	2.000	2.000	14
17	-0.171	13.894	1.833	.967	6	1.929	2.371	14
18	.089	7.625	2.500	3.100	6	2.429	1.302	14
19	-0.454	7.596	2.500	3.900	6	2.857	1.824	14
20	.565	8.389	3.167	2.967	6	2.714	2.220	14
21	1.774	8.690	3.167	2.167	6	1.929	1.764	14
22	.574	7.289	2.167	2.167	6	1.786	1.104	14
23	1.126	7.386	2.167	1.367	6	1.571	.725	14
24	1.183	6.105	2.000	1.600	6	1.357	.401	14
25	-1.385	13.000	1.000	0	6	1.214	.335	14
26	.276	9.244	2.500	2.700	6	2.286	2.527	14
27	-0.050	7.708	3.000	9.600	6	3.071	5.764	14
28	.021	9.096	3.167	5.767	6	3.143	5.209	14
29	-0.583	8.279	3.000	4.400	6	3.571	3.187	14
30	.249	8.592	3.833	8.167	6	3.500	6.115	14
31	-1.352	15.509	1.333	.667	6	2.500	1.846	14
32	.266	6.570	2.833	8.167	6	2.500	2.885	14
33	-1.113	12.437	1.667	2.667	6	2.643	4.555	14
34	-0.378	9.874	1.833	4.167	6	2.214	4.489	14
35	4.186	15.294	6.833	.167	6	4.500	3.962	14
36	.455	6.519	2.500	6.300	6	2.000	2.154	14
37	2.687	12.723	6.500	1.500	6	4.714	2.681	14
38	-0.883	11.724	1.833	4.167	6	2.786	6.339	14
39	1.033	7.518	6.000	2.800	6	5.214	1.566	14
40	-0.101	7.663	3.000	9.600	6	3.143	5.670	14
41	.051	7.264	3.000	9.600	6	2.929	4.541	14
42	.691	7.711	3.667	9.067	6	2.714	5.451	14
43	-0.151	7.761	3.000	9.600	6	3.214	5.874	14
44	-0.946	8.133	3.000	9.600	6	3.786	6.643	14
45	.687	5.835	1.500	1.500	6	1.143	.286	14
46	.108	6.944	2.833	6.167	6	2.714	2.681	14
47	-3.145	13.000	1.000	0	6	2.571	3.495	14


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FFFFF   III   H   H   V   V
F       1     H   H   V   V
F       I     H   H   V   V
FFFFF   I     H   H   V   V
F       I     H   H   V   V
F       I     H   H   V   V
F       III   H   H   V

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FFFFF   III   L       V   V
F       I     L       V   V
F       I     L       V   V
FFFFF   I     L       V   V
F       I     L       V   V
F       III   LLLLL   V

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ITEM	TVALUE	OF	MEAN1	VAR1	N1	MEAN2	VAR2	N2
*1-	3.162	12.073	3.091	1.291	11	1.750	.250	4
*2-	3.464	10.000	1.545	.273	11	1.000	0	4
3	1.970	4.477	3.545	1.273	11	2.000	2.000	4
4	.966	4.305	3.545	1.273	11	2.750	2.250	4
5	1.936	10.000	1.545	.873	11	1.000	0	4
6	1.753	5.455	3.455	2.073	11	2.000	2.000	4
7	.699	11.157	1.818	1.364	11	1.500	3.333	4
8	.555	4.010	3.545	1.473	11	3.000	3.333	4
9	.274	5.054	2.182	1.164	11	2.000	1.333	4
*10	3.113	4.920	4.273	.818	11	2.500	1.000	4
11	.104	8.485	2.818	2.164	11	2.750	.917	4
12	1.256	11.870	2.273	1.218	11	1.750	.250	4
13	.206	7.844	2.636	2.055	11	2.500	1.000	4
*14	2.283	10.000	1.636	.855	11	1.000	0	4
15	-0.633	4.107	1.818	.764	11	2.250	1.583	4
16	.206	7.844	2.636	2.055	11	2.500	1.000	4
*17	2.343	12.923	2.818	2.564	11	1.500	.333	4
18	-1.261	4.687	2.182	.964	11	3.000	1.333	4
19	.897	6.168	3.273	1.218	11	2.750	.917	4
20	-1.092	4.074	2.364	1.055	11	3.250	2.250	4
21	.979	4.093	3.545	1.073	11	2.750	2.250	4
22	-1.340	3.214	1.727	.218	11	2.750	2.250	4
23	-1.412	4.554	2.091	.891	11	3.000	1.333	4
24	-1.773	5.544	2.455	1.073	11	3.500	1.000	4
25	1.936	10.000	1.273	.218	11	1.000	0	4
26	.897	6.168	2.273	1.218	11	1.750	.917	4
27	-2.331	6.098	3.000	2.600	11	5.000	2.000	4
28	-1.547	3.893	2.091	2.091	11	4.000	5.333	4
29	-4.020	8.760	3.091	2.291	11	5.750	.917	4
*30	-0.995	9.320	4.000	5.600	11	5.000	2.000	4
31	-1.189	3.563	1.818	.564	11	2.750	2.250	4
*32	-5.711	5.276	2.182	.964	11	5.500	1.000	4
33	-0.770	5.217	2.727	2.818	11	3.500	3.000	4
34	1.798	9.930	2.818	3.164	11	1.500	1.000	4
*35	3.415	10.339	5.091	2.291	11	3.000	.667	4
36	-1.780	6.022	2.636	2.855	11	4.250	2.250	4
*37	3.293	4.236	5.545	1.073	11	3.000	2.000	4
38	-1.536	3.236	1.636	.455	11	3.250	4.250	4
39	1.490	3.268	5.818	.364	11	4.500	3.000	4
40	-2.223	8.737	2.800	3.733	10	4.750	1.583	4
41	-2.126	4.529	2.455	3.673	11	5.250	5.583	4
42	-2.515	3.512	2.273	.818	11	4.750	3.583	4
43	-1.624	3.748	2.455	1.873	11	4.500	5.667	4
44	-0.523	4.907	2.636	3.455	11	3.250	4.250	4
45	1.073	3.642	5.000	1.400	11	3.750	4.917	4
46	-1.941	6.036	2.273	2.018	11	4.750	1.583	4
47	.260	6.724	3.455	2.473	11	3.250	1.583	4

ITEM	TVALUE	DF	MEAN1	VAR1	N1	MEAN2	VAR2	N2
1	2.080	2.497	2.833	1.967	6	1.500	.500	2
2	.237	3.284	1.667	1.467	6	1.500	.500	2
3	.482	3.132	1.833	1.367	6	1.500	.500	2
4	.232	1.344	3.500	3.900	6	3.000	8.000	2
5	-0.650	1.106	1.500	3.700	6	2.500	4.500	2
6	.201	1.474	2.833	2.967	6	2.500	4.500	2
7	-0.650	1.106	1.500	3.700	6	2.500	4.500	2
8	-0.186	1.965	2.167	5.767	6	2.500	4.500	2
9	-0.150	1.492	1.833	1.367	6	2.000	2.000	2
10	-0.964	3.132	3.833	1.367	6	4.500	8.500	2
11	.237	1.235	3.500	2.700	6	3.000	8.000	2
12	-0.550	1.040	1.667	2.267	6	2.500	4.500	2
13	.825	1.340	3.833	2.167	6	2.500	4.500	2
14	.143	1.806	2.167	2.167	6	2.000	2.000	2
15	1.387	2.007	2.333	.667	6	1.500	.500	2
16	-0.770	1.040	1.333	.267	6	2.500	4.500	2
17	.102	1.423	2.667	2.667	6	2.500	4.500	2
18	1.414	3.333	2.500	1.500	6	1.500	.500	2
19	.640	2.619	2.833	4.167	6	2.000	2.000	2
20	-0.424	1.210	1.833	1.367	6	2.500	4.500	2
21	.0	1.208	3.000	2.460	6	3.000	8.000	2
22	.0	2.061	1.500	3.700	6	1.500	.500	2
23	-1.053	1.492	1.833	1.367	6	3.000	8.000	2
24	-0.964	3.713	2.933	1.767	6	3.500	12.500	2
25	-0.424	1.210	1.833	1.367	6	2.500	4.500	2
26	.307	1.378	1.667	.267	6	1.500	.500	2
27	.148	1.969	3.333	6.267	6	3.000	8.000	2
28	.773	5.899	2.333	5.467	6	1.500	.500	2
29	-0.486	3.431	3.333	6.267	6	4.000	2.000	2
30	.597	1.097	5.833	2.567	6	4.000	18.000	2
31	.620	4.471	2.000	2.400	6	1.500	.500	2
32	.161	2.210	2.200	2.700	5	2.000	2.000	2
33	-0.126	1.232	3.167	4.167	6	3.500	12.500	2
34	-0.264	1.222	3.167	5.767	6	4.000	18.000	2
35	.446	1.191	4.667	3.467	6	3.500	12.500	2
36	.586	1.647	4.333	7.067	6	3.000	8.000	2
37	-4.392	5.000	5.500	.700	6	7.000	0	2
38	-0.554	1.223	1.833	2.567	6	3.000	8.000	2
39	1.232	1.059	5.500	.700	6	3.000	8.000	2
40	-0.076	1.467	2.833	4.567	6	3.000	8.000	2
41	-1.273	4.254	4.000	8.800	6	6.000	2.000	2
42	3.354	5.000	4.000	4.800	6	1.000	0	2
43	.712	5.452	2.167	3.767	6	1.500	.500	2
44	1.328	3.890	2.500	1.900	6	4.500	12.500	2
45	-0.821	1.237	2.333	4.267	6	2.500	4.500	2
46	-0.407	1.406	1.833	2.567	6	2.500	4.500	2
47	3.479	5.000	4.667	6.667	6	1.000	0	2

LING/LAVZ,MAVZ

JOB NO. 748165 07/28/75 5:44PM TERMINAL 111

ITEM	TVALUE	DF	MEAN1	VAR1	N1	MEAN2	VAR2	N2
1	-0.333	81.000	1.500	.500	2	2.000	2.000	1
2	.577	9.000	2.000	2.000	2	1.000	2.000	1
3	-1.000	81.000	1.500	.500	2	3.000	2.000	1
4	.333	81.000	1.500	.500	2	1.000	2.000	1
5	0	0	1.000	0	2	1.000	2.000	1
6	-1.000	81.000	1.500	.500	2	3.000	2.000	1
7	.728	3.568	2.500	4.500	2	1.000	2.000	1
8	-1.667	81.000	1.500	.500	2	4.000	2.000	1
9	0	0	1.000	0	2	1.000	2.000	1
10	-1.155	9.000	3.000	2.000	2	5.000	2.000	1
11	0	9.000	2.000	2.000	2	2.000	2.000	1
12	.333	81.000	1.500	.500	2	1.000	2.000	1
13	.577	9.000	2.000	2.000	2	1.000	2.000	1
14	.577	9.000	2.000	2.000	2	1.000	2.000	1
15	.728	3.568	2.500	4.500	2	1.000	2.000	1
16	-0.333	81.000	1.500	.500	2	2.000	2.000	1
17	.707	0	2.000	0	2	1.000	2.000	1
18	.728	3.568	2.500	4.500	2	1.000	2.000	1
19	-1.000	81.000	1.500	.500	2	3.000	2.000	1
20	.816	2.250	3.000	8.000	2	1.000	2.000	1
21	-1.000	81.000	1.500	.500	2	3.000	2.000	1
22	-0.707	0	1.000	0	2	2.000	2.000	1
23	-0.707	0	1.000	0	2	2.000	2.000	1
24	1.000	81.000	2.500	.500	2	1.000	2.000	1
25	.333	81.000	1.500	.500	2	1.000	2.000	1
26	.333	81.000	1.500	.500	2	1.000	2.000	1
27	.870	1.742	3.500	12.500	2	1.000	2.000	1
28	.905	1.494	4.000	18.000	2	1.000	2.000	1
29	1.155	9.000	3.000	2.000	2	1.000	2.000	1
30	.333	81.000	2.500	.500	2	2.000	2.000	1
31	-0.333	81.000	1.500	.500	2	2.000	2.000	1
32	.870	1.742	3.500	12.500	2	1.000	2.000	1
33	.905	1.494	4.000	18.000	2	1.000	2.000	1
34	.333	81.000	1.500	.500	2	1.000	2.000	1
35	-1.000	81.000	4.500	.500	2	6.000	2.000	1
36	.333	81.000	1.500	.500	2	1.000	2.000	1
37	-1.155	9.000	3.000	2.000	2	5.000	2.000	1
38	0	9.000	2.000	2.000	2	2.000	2.000	1
39	1.414	0	3.000	0	2	1.000	2.000	1
40	.870	1.742	3.500	12.500	2	1.000	2.000	1
41	1.225	2.250	4.000	8.000	2	1.000	2.000	1
42	.333	81.000	2.500	.500	2	2.000	2.000	1
43	1.213	3.568	3.500	4.500	2	1.000	2.000	1
44	.577	9.000	2.000	2.000	2	1.000	2.000	1
45	-2.309	9.000	2.000	2.000	2	6.000	2.000	1
46	-0.707	0	1.000	0	2	2.000	2.000	1
47	0	0	1.000	0	2	1.000	2.000	1

ITEM	TVALUE	DF	MEAN1	VAR1	N1	MEAN2	VAR2	N2
1	-1.901	57.99*	2.143	1.810	7	5.000	2.000	1
2	.391	78.94*	1.571	.952	7	1.000	2.000	1
3	-1.779	46.11*	1.429	.619	7	4.000	2.000	1
4	-1.323	84.00*	3.000	2.000	7	5.000	2.000	1
5	.716	31.13*	2.143	3.810	7	1.000	2.000	1
6	-1.471	03.21*	2.714	2.905	7	5.000	2.000	1
7	.909	66.06*	2.429	3.286	7	1.000	2.000	1
8	-0.383	58.39*	2.429	1.619	7	3.000	2.000	1
9	.909	66.06*	2.429	3.286	7	1.000	2.000	1
10	-0.490	26.29*	4.286	.905	7	5.000	2.000	1
11	1.000	66.06*	2.571	3.286	7	1.000	2.000	1
12	1.082	45.23*	2.714	3.571	7	1.000	2.000	1
13	.981	23.78*	2.571	3.952	7	1.000	2.000	1
14	.655	94.00*	2.000	2.333	7	1.000	2.000	1
15	.738	14.78*	2.143	2.810	7	1.000	2.000	1
16	.836	49.18*	2.286	2.571	7	1.000	2.000	1
17	.909	66.06*	2.429	3.286	7	1.000	2.000	1
18	1.211	65.64*	2.857	2.476	7	1.000	2.000	1
19	-1.211	65.64*	3.143	2.476	7	5.000	2.000	1
20	1.114	49.18*	2.714	2.571	7	1.000	2.000	1
21	.738	14.78*	2.143	2.810	7	1.000	2.000	1
22	.469	15.83*	1.714	2.238	7	1.000	2.000	1
23	-0.707	0	1.000	0	7	2.000	2.000	1
24	.300	00.00*	1.429	.286	7	1.000	2.000	1
25	.193	01.50*	1.286	.571	7	1.000	2.000	1
26	.981	23.78*	2.571	3.952	7	1.000	2.000	1
27	1.113	75.893	2.857	5.476	7	1.000	2.000	1
28	1.415	58.223	3.429	6.619	7	1.000	2.000	1
29	1.443	45.23*	3.286	3.571	7	1.000	2.000	1
30	1.631	49.511	3.857	7.476	7	1.000	2.000	1
31	.589	08.04*	1.857	.810	7	1.000	2.000	1
32	.827	03.21*	2.286	2.905	7	1.000	2.000	1
33	1.263	64.514	3.143	6.143	7	1.000	2.000	1
34	.992	54.998	2.714	6.905	7	7.000	2.000	1
35	-1.164	31.13*	5.143	3.810	7	1.000	2.000	1
36	1.000	66.06*	2.571	3.286	7	7.000	2.000	1
37	-1.114	49.18*	5.286	2.571	7	1.000	2.000	1
38	.782	89.137	2.286	4.905	7	7.000	2.000	1
39	-1.126	15.83*	5.286	2.238	7	1.000	2.000	1
40	1.043	89.137	2.714	4.905	7	1.000	2.000	1
41	1.113	75.893	2.857	5.476	7	1.000	2.000	1
42	1.223	49.511	3.143	7.476	7	1.000	2.000	1
43	1.203	78.844	3.000	5.333	7	1.000	2.000	1
44	1.794	49.511	4.143	7.476	7	1.000	2.000	1
45	.198	01.50*	1.286	.571	7	1.000	2.000	1
46	.786	08.04*	2.143	.810	7	1.000	2.000	1
47	1.143	02.22*	2.857	4.476	7	1.000	2.000	1

ITEM	TVALUE	DF	MEAN1	VAR1	N1	MEAN2	VAR2	N2
1	-1.000	0	2.0000	2.0000	1	4.0000	2.0000	1
2	0	0	1.0000	2.0000	1	1.0000	2.0000	1
3	.500	0	2.0000	2.0000	1	1.0000	2.0000	1
4	1.500	0	4.0000	2.0000	1	1.0000	2.0000	1
5	0	0	1.0000	2.0000	1	1.0000	2.0000	1
6	1.500	0	4.0000	2.0000	1	1.0000	2.0000	1
7	-1.500	0	1.0000	2.0000	1	4.0000	2.0000	1
8	0	0	4.0000	2.0000	1	4.0000	2.0000	1
9	0	0	3.0000	2.0000	1	3.0000	2.0000	1
10	0	0	4.0000	2.0000	1	4.0000	2.0000	1
11	0	0	2.0000	2.0000	1	2.0000	2.0000	1
12	0	0	2.0000	2.0000	1	2.0000	2.0000	1
13	0	0	2.0000	2.0000	1	2.0000	2.0000	1
14	0	0	1.0000	2.0000	1	1.0000	2.0000	1
15	.500	0	2.0000	2.0000	1	1.0000	2.0000	1
16	0	0	2.0000	2.0000	1	2.0000	2.0000	1
17	.500	0	2.0000	2.0000	1	1.0000	2.0000	1
18	-1.000	0	2.0000	2.0000	1	4.0000	2.0000	1
19	0	0	4.0000	2.0000	1	4.0000	2.0000	1
20	-1.500	0	2.0000	2.0000	1	5.0000	2.0000	1
21	1.500	0	4.0000	2.0000	1	1.0000	2.0000	1
22	0	0	2.0000	2.0000	1	2.0000	2.0000	1
23	0	0	2.0000	2.0000	1	2.0000	2.0000	1
24	0	0	2.0000	2.0000	1	2.0000	2.0000	1
25	0	0	1.0000	2.0000	1	1.0000	2.0000	1
26	0	0	1.0000	2.0000	1	1.0000	2.0000	1
27	0	0	5.0000	2.0000	1	5.0000	2.0000	1
28	-1.500	0	2.0000	2.0000	1	5.0000	2.0000	1
29	1.000	0	5.0000	2.0000	1	3.0000	2.0000	1
30	0	0	3.0000	2.0000	1	3.0000	2.0000	1
31	-0.500	0	2.0000	2.0000	1	3.0000	2.0000	1
32	-0.500	0	4.0000	2.0000	1	5.0000	2.0000	1
33	-1.500	0	3.0000	2.0000	1	6.0000	2.0000	1
34	-2.500	0	1.0000	2.0000	1	6.0000	2.0000	1
35	-1.000	0	4.0000	2.0000	1	2.0000	2.0000	1
36	.500	0	3.0000	2.0000	1	2.0000	2.0000	1
37	1.000	0	5.0000	2.0000	1	3.0000	2.0000	1
38	0	0	3.0000	2.0000	1	3.0000	2.0000	1
39	0	0	6.0000	2.0000	1	6.0000	2.0000	1
40	-1.500	0	3.0000	2.0000	1	6.0000	2.0000	1
41	-1.500	0	2.0000	2.0000	1	5.0000	2.0000	1
42	-0.500	0	2.0000	2.0000	1	3.0000	2.0000	1
43	-2.500	0	1.0000	2.0000	1	6.0000	2.0000	1
44	-2.000	0	1.0000	2.0000	1	5.0000	2.0000	1
45	-2.500	0	7.0000	2.0000	1	2.0000	2.0000	1
46	-1.500	0	3.0000	2.0000	1	6.0000	2.0000	1
47	0	0	2.0000	2.0000	1	2.0000	2.0000	1

ITEM	TVALUE	DF	MEAN1	VAR1	N1	MEAN2	VAR2	N2
1	-1.0000	2.990	2.667	1.333	3	3.500	.500	2
2	1.0000	1.000	2.000	0	3	1.500	.500	2
3	1.0000	1.000	2.000	0	3	1.500	.500	2
4	-0.5000	2.427	2.333	2.333	3	3.000	2.000	2
5	1.0000	2.000	1.333	.333	3	1.000	0	2
6	-0.447	1.515	2.000	3.000	3	3.000	8.000	2
7	-0.277	1.899	1.333	.333	3	1.500	.500	2
8	.759	1.100	4.667	.333	3	3.500	4.500	2
9	.655	2.882	3.000	1.000	3	2.500	.500	2
10	-5.0000	2.000	2.333	.333	3	4.000	0	2
11	1.0000	2.000	3.000	3.000	3	2.000	0	2
12	0	2.000	2.000	1.000	3	2.000	0	2
13	.756	2.000	2.667	2.333	3	2.000	0	2
14	-1.265	1.227	1.667	.333	3	3.000	2.000	2
15	-0.632	1.227	2.333	.333	3	3.000	2.000	2
16	.378	2.000	2.333	2.333	3	2.000	0	2
17	-0.164	2.894	2.333	2.333	3	2.500	.500	2
18	.277	1.899	3.333	1.333	3	3.000	2.000	2
19	.500	2.427	3.667	2.333	3	3.000	4.500	2
20	.096	1.709	3.667	2.333	3	3.500	2.000	2
21	.213	2.924	3.333	4.333	3	3.000	2.000	2
22	-1.0000	2.000	1.667	.333	3	2.000	0	2
23	-0.277	1.899	2.667	1.333	3	3.000	2.000	2
24	1.0000	1.000	4.000	0	3	3.000	2.000	2
25	-0.277	1.899	1.333	.333	3	1.500	.500	2
26	-0.311	1.304	2.000	1.000	3	2.500	4.500	2
27	-0.200	2.990	3.667	5.333	3	4.000	2.000	2
28	-0.434	2.235	2.667	4.333	3	3.500	4.500	2
29	1.732	1.684	6.000	1.000	3	4.000	2.000	2
30	.213	2.924	4.333	4.333	3	4.000	2.000	2
31	-0.277	1.899	2.333	.333	3	2.500	.500	2
32	3.273	2.882	5.000	1.000	3	2.500	.500	2
33	-0.655	2.882	2.000	1.000	3	2.500	.500	2
34	-1.265	1.227	1.667	.333	3	3.000	2.000	2
35	-1.109	1.899	2.667	1.333	3	4.000	2.000	2
36	-0.234	2.698	3.000	7.000	3	3.500	4.500	2
37	-1.109	1.899	2.667	1.333	3	4.000	2.000	2
38	-0.096	1.709	3.333	2.333	3	3.500	4.500	2
39	.277	1.899	5.667	.333	3	5.500	.500	2
40	1.408	2.597	4.333	4.333	3	5.500	.500	2
41	.792	2.154	5.000	4.000	3	3.500	4.500	2
42	-0.670	1.709	3.333	2.333	3	4.500	4.500	2
43	.087	2.235	3.667	4.333	3	3.500	4.500	2
44	1.387	1.899	3.333	.333	3	2.500	.500	2
45	.447	1.515	5.000	3.000	3	4.000	8.000	2
46	2.000	2.000	4.333	1.333	3	3.000	0	2
47	-0.096	1.709	3.333	2.333	3	3.500	4.500	2

ITEM	TVALUE	DF	MEAN1	VAR1	N1	MEAN2	VAR2	N2
1	1.657	29.336	2.892	1.146	51	2.389	1.193	18
2	-1.504	29.297	1.725	1.043	51	2.222	1.599	18
3	-1.973	38.741	2.490	1.775	51	1.889	1.046	18
4	.633	28.453	3.137	1.881	51	2.889	2.105	18
5	.806	33.515	1.725	1.243	51	1.500	.971	18
6	1.431	26.582	2.902	2.170	51	2.294	2.346	17
7	-0.781	32.597	1.824	1.348	51	2.056	1.114	18
8	-0.882	30.442	2.863	2.281	51	3.222	2.133	18
9	-0.055	34.724	2.373	1.478	51	2.389	1.075	18
10	-0.249	32.566	3.647	1.393	51	3.722	1.154	18
11	.995	31.662	2.902	1.770	51	2.556	1.556	18
12	1.644	36.854	2.353	1.433	51	1.889	.928	18
13	1.710	32.077	2.765	1.824	51	2.167	1.559	18
14	-0.539	23.504	1.725	.723	51	1.889	1.399	18
15	-0.033	27.329	2.157	.975	51	2.167	1.206	18
16	.853	35.895	2.255	1.554	51	2.000	1.099	18
17	1.524	38.167	2.725	2.043	51	2.222	1.242	18
18	-0.776	31.459	2.430	1.295	51	2.722	1.154	18
19	-0.577	30.909	2.559	1.850	51	2.778	1.712	18
20	.094	29.865	2.980	1.940	51	2.344	1.938	18
21	.788	24.926	3.255	1.434	51	2.944	2.291	18
22	-0.825	27.319	1.800	.653	50	2.000	.824	18
23	-2.235	31.506	2.118	1.266	51	2.778	1.124	18
24	.197	35.690	3.059	1.536	51	3.000	1.059	18
25	-0.693	29.337	1.588	.967	51	1.778	1.007	18
26	1.640	33.440	2.196	1.321	51	1.722	1.036	18
27	.344	34.702	3.660	3.535	50	3.500	2.618	18
28	-0.009	34.173	2.940	3.772	50	2.944	2.879	18
29	-0.619	35.322	4.100	3.643	50	4.389	2.605	18
30	1.940	26.462	5.120	3.128	50	4.056	4.291	18
31	-1.109	35.857	2.220	1.563	50	2.556	1.085	18
32	-0.113	31.362	3.714	4.375	49	3.778	4.065	18
33	-0.563	29.766	3.260	3.584	50	3.556	2.673	18
34	-1.147	29.074	2.540	3.723	50	3.167	4.029	18
35	.451	27.385	4.500	2.704	50	4.278	3.389	18
36	.347	34.172	3.180	4.314	50	3.000	3.294	18
37	.817	30.271	4.800	2.531	50	4.444	2.497	18
38	-1.460	26.238	2.580	2.330	50	3.278	3.271	18
39	.849	25.528	5.560	1.517	50	5.222	2.301	18
40	-0.030	31.839	3.429	4.083	49	3.444	2.673	18
41	-0.848	31.350	3.780	4.869	50	4.278	4.448	18
42	.715	32.917	3.630	3.569	50	3.333	2.941	18
43	-0.329	30.539	3.160	3.770	50	3.333	3.647	18
44	.528	31.477	3.320	3.569	50	3.056	3.232	18
45	-1.153	28.692	3.460	3.886	50	4.111	4.340	18
46	-0.847	29.806	3.180	2.559	50	3.556	2.614	18
47	.972	33.028	3.340	3.290	50	2.889	2.693	18

ITEM	TVALUE	DF	MEAN1	VAR1	N1	MEAN2	VAR2	N2
1	-1.221	61.614	2.556	.795	27	2.865	1.287	37
2	1.821	35.912	1.778	.949	27	1.405	.248	37
3	-2.979	61.880	1.889	.949	27	2.730	1.647	37
4	-1.869	48.900	2.926	2.148	27	3.568	1.419	37
5	.520	53.621	1.704	1.140	27	1.568	.974	37
6	-2.724	58.811	2.231	1.625	26	3.189	2.269	37
7	.511	50.515	1.815	1.311	27	1.676	.947	37
8	-0.028	48.193	3.074	2.994	27	3.351	1.901	37
9	.254	54.467	2.148	1.131	27	2.081	1.021	37
10	-2.259	43.915	3.556	1.564	27	4.189	.769	37
11	.626	56.550	2.889	1.795	27	2.676	1.836	37
12	-2.266	61.954	1.741	.661	27	2.297	1.326	37
13	.689	53.485	2.667	1.923	27	2.432	1.641	37
14	-0.500	54.055	1.556	.949	27	1.676	.836	37
15	1.316	50.737	2.037	.960	27	1.730	.703	37
16	-1.121	55.569	1.963	1.191	27	2.276	1.147	37
17	-1.286	58.702	2.296	1.447	27	2.703	1.715	37
18	2.093	50.416	2.741	1.353	27	2.162	.973	37
19	1.678	56.191	3.000	1.846	27	2.459	1.311	37
20	-0.412	56.972	2.556	1.949	27	2.703	2.048	37
21	-1.583	48.710	3.000	1.923	27	3.514	1.297	37
22	1.397	37.367	2.037	1.268	27	1.703	.381	37
23	.312	53.598	2.333	1.385	27	2.243	1.189	37
24	1.791	60.393	3.037	1.037	27	2.541	1.422	37
25	.938	51.445	1.667	.846	27	1.459	.644	37
26	-1.043	61.906	1.815	.772	27	2.081	1.354	37
27	.337	50.873	3.407	4.174	27	3.243	3.078	37
28	.306	53.429	2.778	4.333	27	2.622	3.686	37
29	1.665	50.169	3.963	4.114	27	3.162	2.917	37
30	.580	57.085	4.481	3.875	27	4.189	4.102	37
31	1.389	39.710	2.407	2.635	27	1.919	.965	37
32	1.814	43.637	3.480	4.427	25	2.568	2.808	37
33	1.107	51.257	3.111	3.795	27	2.595	2.859	37
34	.914	47.692	2.667	4.000	27	2.243	2.467	37
35	-1.275	54.495	4.444	2.795	27	4.973	2.527	37
36	1.266	45.364	3.185	4.618	27	2.568	2.474	37
37	-2.005	51.318	4.667	2.538	27	5.432	1.919	37
38	.672	46.187	2.333	2.692	27	2.081	1.921	37
39	-1.040	55.365	5.370	1.627	27	5.703	1.548	37
40	1.899	46.586	3.296	4.063	27	2.417	2.307	36
41	1.358	49.583	3.556	5.410	27	2.811	3.713	37
42	2.048	54.888	3.704	3.447	27	2.757	3.189	37
43	.859	51.527	3.296	4.370	27	2.865	3.342	37
44	-0.574	61.993	2.407	1.558	27	2.622	3.020	37
45	-0.547	48.539	3.296	5.447	27	3.595	3.526	37
46	.464	48.727	2.963	2.729	27	2.784	1.785	37
47	.513	49.229	3.074	3.840	27	2.838	2.584	37

ITEM	TVALUE	OF	MEAN1	VAR1	N1	MEAN2	VAR2	N2
1	-0.152	6.205	2.700	.900	10	2.800	1.700	5
2	.775	12.500	1.700	.900	10	1.400	.300	5
3	1.353	12.026	1.300	.767	10	1.400	.300	5
4	.610	7.829	3.200	3.067	10	2.600	3.300	5
5	-0.313	5.118	1.400	.489	10	1.600	1.800	5
6	.296	6.933	2.700	2.678	10	2.400	3.800	5
7	-1.402	4.871	1.400	.489	10	2.400	2.300	5
8	-0.099	10.531	3.100	4.767	10	2.200	2.700	5
9	-0.184	10.311	2.300	1.344	10	2.400	.800	5
10	-1.897	12.596	3.400	1.378	10	4.200	.200	5
11	.956	8.263	3.200	2.400	10	2.400	2.300	5
12	-0.756	5.378	1.800	.400	10	2.200	1.200	5
13	1.616	10.765	3.300	2.233	10	2.200	1.200	5
14	-0.432	7.492	1.900	1.433	10	2.200	1.700	5
15	.510	5.253	2.300	.456	10	2.000	1.500	5
16	-0.870	7.118	1.700	.900	10	2.200	1.200	5
17	.406	8.859	2.500	2.056	10	2.200	1.700	5
18	.142	7.105	2.700	1.344	10	2.600	1.800	5
19	.497	10.627	3.200	3.067	10	2.800	1.700	5
20	-1.076	6.581	2.400	2.044	10	3.400	3.300	5
21	.632	7.025	3.200	2.400	10	2.600	3.300	5
22	-0.671	11.871	1.600	.489	10	1.800	.200	5
23	-1.165	8.135	2.100	1.211	10	2.800	1.200	5
24	.171	9.597	3.100	1.433	10	3.000	1.000	5
25	-0.304	6.287	1.600	.933	10	1.800	1.700	5
26	-0.161	5.103	1.700	.456	10	1.800	1.700	5
27	-0.183	9.923	3.600	4.933	10	3.800	3.200	5
28	-0.571	8.671	2.400	4.044	10	3.000	3.500	5
29	.568	13.000	4.300	5.344	10	3.800	1.200	5
30	1.105	6.750	5.100	3.433	10	3.800	5.200	5
31	-0.183	11.177	2.100	1.433	10	2.200	.700	5
32	.586	10.268	3.333	3.500	9	2.800	2.200	5
33	-0.690	6.235	2.800	2.844	10	3.600	5.300	5
34	-1.149	6.600	2.500	4.056	10	4.000	6.500	5
35	-0.179	6.757	4.000	3.111	10	4.200	4.700	5
36	.703	10.367	3.800	5.956	10	3.000	3.500	5
37	-0.391	6.592	4.600	2.489	10	5.000	4.000	5
38	-0.849	7.230	2.400	2.489	10	3.200	3.200	5
39	1.049	4.461	5.600	.489	10	4.600	4.300	5
40	-0.089	7.843	3.300	4.011	10	3.400	4.300	5
41	-0.615	11.171	4.100	6.544	10	4.800	3.200	5
42	.730	7.547	3.600	3.600	10	2.800	4.200	5
43	-0.609	7.382	2.500	3.833	10	3.200	4.700	5
44	0	6.896	2.600	1.600	10	2.600	2.300	5
45	-0.147	8.005	3.600	6.044	10	3.800	6.200	5
46	-0.710	7.894	2.700	3.122	10	3.400	3.300	5
47	1.756	10.840	4.000	5.111	10	2.200	2.700	5

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ITEM	TVALUE	OF	MEAN1	VAR1	N1	MEAN2	VAR2	N2
1	-0.572	23.946	2.200	.929	35	2.412	1.882	17
2	0.637	36.090	1.657	1.173	35	1.471	.890	17
3	-1.716	39.177	2.229	1.829	35	2.824	1.154	17
4	-1.871	34.445	2.857	1.655	35	2.929	1.390	17
5	-0.321	34.980	1.657	1.467	35	1.765	1.191	17
6	-1.108	28.071	2.400	1.776	35	2.882	2.360	17
7	0.362	29.302	2.086	1.610	35	1.941	1.934	17
8	0.228	29.879	2.743	1.844	35	2.647	2.118	17
9	0.143	30.904	2.057	1.761	35	2.000	1.875	17
10	-5.242	48.165	4.000	.765	35	4.882	.110	17
11	0.240	26.338	2.600	1.776	35	2.471	2.765	17
12	-0.016	29.975	2.229	1.358	35	2.235	2.191	17
13	0.400	27.171	2.600	1.482	35	2.412	.132	17
14	1.939	47.756	1.571	1.134	35	1.176	.154	17
15	1.620	40.598	1.771	1.064	35	1.353	.618	17
16	0.294	28.166	2.057	1.467	35	1.941	1.934	17
17	1.635	39.022	2.171	1.558	35	1.647	1.893	17
18	1.325	26.421	2.229	1.064	35	1.765	1.566	17
19	0.690	26.489	3.000	1.529	35	2.706	2.346	17
20	1.017	30.815	2.600	1.894	35	2.176	2.029	17
21	-1.154	33.899	2.657	1.997	35	3.118	1.735	17
22	0.177	29.482	2.057	1.055	35	2.000	1.250	17
23	-0.564	29.665	2.114	1.045	35	2.294	1.221	17
24	2.175	39.348	2.400	1.306	35	1.765	.816	17
25	0.939	34.614	1.600	1.894	35	1.353	.743	17
26	0.987	31.482	2.143	1.655	35	1.765	1.691	17
27	0.583	30.207	2.829	3.852	35	2.235	4.316	17
28	0.425	35.191	2.514	3.551	35	2.294	2.846	17
29	2.432	32.284	3.114	2.457	35	2.000	2.375	17
30	0.464	30.905	3.457	4.020	35	3.176	4.279	17
31	1.911	45.052	2.296	1.739	35	1.706	.721	17
32	0.375	23.732	2.457	3.314	35	2.235	4.816	17
33	1.556	32.874	2.971	3.617	35	2.118	3.360	17
34	0.209	28.806	2.057	2.644	35	1.941	3.934	17
35	-3.349	38.808	4.829	3.029	35	6.059	1.309	17
36	0.027	29.145	2.436	3.198	35	2.471	3.830	17
37	-3.379	38.016	4.630	2.306	35	5.941	1.559	17
38	0.893	37.671	2.429	4.252	35	1.941	2.934	17
39	-0.317	26.685	5.200	1.989	35	5.353	2.993	17
40	0.800	29.497	2.914	4.022	35	2.412	4.757	17
41	0.755	25.590	3.171	3.793	35	2.647	6.368	17
42	0.135	25.946	3.143	3.126	35	3.059	5.059	17
43	0.868	29.934	2.886	3.928	35	2.353	4.493	17
44	0.695	31.298	2.857	4.597	35	2.412	4.757	17
45	0.493	29.994	2.743	3.197	35	2.471	3.640	17
46	0.969	30.151	2.686	2.281	35	2.235	2.566	17
47	1.606	35.248	2.800	3.518	35	1.941	2.809	17

ITEM	TVALUE	DF	MEAN1	VAR1	N1	MEAN2	VAR2	N2
1	-0.359	6.762	2.217	.929	46	2.429	2.286	7
2	.116	7.126	1.783	1.329	46	1.714	2.238	7
3	-0.853	7.258	2.522	1.322	46	3.000	2.000	7
4	.243	7.046	2.283	1.185	46	3.143	2.143	7
5	-0.080	7.693	1.674	1.380	46	1.714	1.571	7
6	-0.578	8.720	2.413	2.159	46	2.714	1.571	7
7	.287	8.300	2.000	1.733	46	1.857	1.476	7
8	-0.062	8.509	2.826	1.880	46	2.857	1.476	7
9	.041	7.935	2.022	1.711	46	2.000	1.067	7
10	-2.025	14.458	3.913	1.103	46	4.429	.286	7
11	-0.779	6.999	2.500	1.411	46	3.000	2.667	7
12	-0.438	7.598	2.065	1.307	46	2.286	1.571	7
13	-0.030	7.781	2.413	1.492	46	2.429	1.619	7
14	-0.140	6.708	1.489	.846	45	1.571	2.236	7
15	.387	11.819	1.522	.788	46	1.429	.236	7
16	-1.232	8.324	1.935	1.129	46	2.429	.952	7
17	-0.486	7.613	2.060	1.200	46	2.286	2.238	7
18	1.411	10.012	2.174	1.125	46	1.714	1.571	7
19	.098	7.587	3.196	1.494	46	3.143	1.810	7
20	.566	8.323	2.331	1.355	46	2.143	1.143	7
21	.759	8.388	2.826	1.969	46	2.429	1.619	7
22	.105	8.724	2.043	1.376	46	2.000	1.000	7
23	-1.367	8.430	2.022	1.177	46	2.571	.952	7
24	3.655	13.850	2.348	1.032	46	1.429	.286	7
25	1.814	18.503	1.739	1.308	46	1.286	.238	7
26	-1.121	7.074	1.761	1.297	46	2.429	2.286	7
27	.030	7.591	2.739	3.086	46	2.714	4.239	7
28	.683	8.014	2.609	2.910	46	2.143	2.810	7
29	-0.532	6.776	3.065	2.462	46	3.571	5.952	7
30	-0.492	6.974	3.391	2.999	46	3.857	5.810	7
31	.214	7.970	2.087	1.014	46	2.000	1.000	7
32	.368	7.516	2.522	2.033	46	2.286	2.571	7
33	1.128	8.035	2.957	3.287	46	2.143	3.143	7
34	.041	7.995	2.174	3.569	46	2.143	3.476	7
35	-2.718	9.985	4.804	1.583	46	3.857	.810	7
36	.330	7.029	2.717	2.696	46	2.429	4.952	7
37	-0.463	7.538	4.565	1.985	46	4.857	2.476	7
38	-1.341	6.738	2.196	2.739	46	3.571	6.952	7
39	.696	7.025	3.391	2.066	46	4.857	3.810	7
40	.195	7.221	3.043	3.731	46	2.857	5.810	7
41	.055	7.126	3.196	3.450	46	3.143	5.810	7
42	.368	9.125	3.370	3.349	46	3.143	2.143	7
43	-0.347	7.395	2.987	2.781	46	2.857	3.810	7
44	-0.518	6.818	2.978	3.755	46	3.571	8.619	7
45	.292	7.525	3.261	3.975	46	3.000	5.000	7
46	-0.567	7.645	2.739	2.686	46	3.143	3.143	7
47	.428	7.134	2.804	2.961	46	2.429	4.952	7

ITEM	TVALUE	DF	MEAN1	VAR1	N1	MEAN2	VAR2	N2
1	-0.802	1.064	2.278	1.271	18	3.500	4.500	2
2	2.961	17.000	1.778	1.242	18	1.000	0	2
3	-2.076	1.907	2.278	1.742	18	3.500	.500	2
4	.082	1.044	3.167	1.559	18	3.000	8.000	2
5	2.179	17.000	1.722	1.977	18	1.000	0	2
6	-1.106	1.237	2.933	2.029	18	4.000	2.000	2
7	3.510	17.000	2.222	2.183	18	1.000	0	2
8	-1.207	2.631	2.778	1.948	18	3.500	.500	2
9	3.082	17.000	2.111	2.340	18	1.000	0	2
10	-4.893	17.000	3.889	.928	18	5.000	0	2
11	1.613	1.867	2.444	1.673	18	1.500	.500	2
12	3.562	17.000	2.111	1.752	18	1.000	0	2
13	4.603	17.000	2.500	1.912	18	1.000	0	2
14	2.718	17.000	1.722	1.271	18	1.000	0	2
15	3.309	17.000	1.944	1.467	18	1.000	0	2
16	.872	1.716	2.000	1.412	18	1.500	.500	2
17	4.106	17.000	2.222	1.595	18	1.000	0	2
18	4.931	17.000	2.389	1.428	18	1.000	0	2
19	-0.854	1.175	3.111	1.516	18	4.000	2.000	2
20	4.603	17.000	2.500	1.912	18	1.000	0	2
21	.732	1.271	2.778	2.301	18	2.000	2.000	2
22	1.047	1.844	2.111	1.634	18	1.500	.500	2
23	-0.195	17.000	1.944	1.467	18	2.000	0	2
24	5.683	17.000	2.389	1.075	18	1.000	0	2
25	2.500	17.000	1.611	1.075	18	1.000	0	2
26	3.344	17.000	2.111	1.987	18	1.000	0	2
27	3.571	17.000	2.611	3.663	18	1.000	0	2
28	3.185	17.000	2.611	4.605	18	1.000	0	2
29	5.487	17.000	3.056	2.526	18	1.000	0	2
30	2.825	3.428	3.444	4.026	18	1.500	.500	2
31	1.374	1.637	2.278	1.271	18	1.500	.500	2
32	4.334	17.000	2.611	2.487	18	1.000	0	2
33	4.582	17.000	3.278	4.448	18	1.000	0	2
34	2.397	17.000	2.111	3.869	18	1.000	0	2
35	-2.379	1.844	5.111	1.634	18	6.500	.500	2
36	4.350	17.000	2.778	3.007	18	1.000	0	2
37	-1.148	1.285	4.778	2.418	18	6.000	2.000	2
38	.841	2.947	2.056	3.350	18	1.500	.500	2
39	.442	1.025	5.333	2.000	18	4.000	18.000	2
40	3.929	17.000	2.944	4.408	18	1.000	0	2
41	4.373	17.000	3.000	3.765	18	1.000	0	2
42	2.509	3.011	3.167	3.441	18	1.500	.500	2
43	3.828	17.000	2.667	3.412	18	1.000	0	2
44	3.531	17.000	2.833	4.853	18	1.000	0	2
45	-0.285	1.052	2.778	2.889	18	3.500	12.500	2
46	1.505	1.930	2.389	1.781	18	1.500	.500	2
47	4.204	17.000	2.889	3.634	18	1.000	0	2

ITEM	TVALUE	DF	MEAN1	VAR1	N1	MEAN2	VAR2	N2
1	-0.182	3.770	2.333	1.381	15	2.500	3.000	4
2	1.132	10.912	1.667	1.095	15	1.250	.250	4
3	-1.310	3.834	1.600	.829	15	2.500	1.667	4
4	.000	3.854	3.000	2.714	15	3.000	5.333	4
5	-0.020	4.591	1.733	2.067	15	1.750	2.290	4
6	-0.686	4.505	2.600	2.543	15	3.250	2.917	4
7	.376	4.708	2.067	2.210	15	1.750	2.250	4
8	-0.961	5.576	2.200	2.886	15	3.000	2.000	4
9	.798	6.924	2.000	2.143	15	1.500	1.000	4
10	-2.159	11.598	3.933	1.210	15	4.750	2.250	4
11	.592	4.359	2.867	2.838	15	2.250	3.583	4
12	.460	4.521	2.133	1.981	15	1.750	2.290	4
13	1.423	5.488	3.000	3.143	15	1.750	2.250	4
14	.921	6.501	2.067	1.924	15	1.500	1.000	4
15	2.388	14.224	2.267	1.781	15	1.250	.250	4
16	-0.259	4.245	1.800	1.457	15	2.000	2.000	4
17	.843	4.873	2.467	2.410	15	1.750	2.250	4
18	3.228	14.775	2.667	1.952	15	1.250	.250	4
19	-0.216	4.804	2.800	2.886	15	3.000	2.667	4
20	.765	4.865	2.400	2.400	15	1.750	2.250	4
21	-0.096	4.112	2.400	2.400	15	2.500	3.667	4
22	.081	9.967	1.533	1.267	15	1.500	.333	4
23	-2.150	4.133	1.333	.667	15	2.500	1.000	4
24	-0.145	3.949	2.133	1.267	15	2.250	2.250	4
25	-0.276	3.618	1.533	.838	15	1.750	.290	4
26	1.825	15.091	2.067	2.067	15	1.250	.290	4
27	.968	5.471	3.133	5.552	15	2.000	4.000	4
28	2.581	16.709	3.067	6.495	15	1.250	.250	4
29	.706	4.872	3.267	3.924	15	2.500	3.667	4
30	1.098	4.176	4.467	5.695	15	2.750	8.250	4
31	.895	9.967	1.867	1.267	15	1.500	.333	4
32	1.328	9.469	2.429	3.341	14	1.500	1.000	4
33	.732	4.518	2.267	5.495	15	2.250	6.250	4
34	.145	4.005	2.733	5.352	15	2.500	5.000	4
35	-0.094	3.676	4.867	2.981	15	5.000	7.333	4
36	.978	5.268	3.133	5.124	15	2.000	4.000	4
37	-2.274	7.052	5.067	2.210	15	6.500	1.000	4
38	-0.174	4.549	2.067	3.210	15	2.250	3.583	4
39	1.016	3.349	5.067	1.924	15	3.500	9.000	4
40	.756	5.066	2.867	4.695	15	2.000	4.000	4
41	-0.020	4.215	3.467	6.410	15	3.500	9.000	4
42	3.346	16.926	3.400	5.257	15	1.250	.250	4
43	2.532	16.996	2.733	4.210	15	1.250	.250	4
44	3.130	16.972	3.200	4.886	15	1.250	.250	4
45	-1.447	3.411	1.800	2.171	15	4.000	8.667	4
46	-0.173	4.202	1.867	1.410	15	2.000	2.000	4
47	3.704	14.000	3.333	5.952	15	1.000	0	4

ITEM	TVALUE	DF	MEAN1	VAR1	N1	MEAN2	VAR2	N2
1	1.165	17.440	2.783	1.223	60	2.385	1.256	13
2	1.026	18.458	1.700	1.027	60	1.692	1.897	13
3	1.310	17.376	2.833	1.667	60	2.308	1.731	13
4	.944	17.160	2.283	1.461	60	2.923	1.577	13
5	1.634	20.937	1.657	1.073	60	1.231	1.692	13
6	.986	14.635	2.800	1.892	60	2.333	2.424	12
7	.414	23.514	1.893	1.359	60	1.769	1.692	13
8	-0.768	16.963	3.217	1.596	60	3.538	1.936	13
9	.342	21.764	2.333	1.446	60	2.231	1.859	13
10	-0.693	18.837	3.533	1.440	60	3.769	1.192	13
11	1.449	21.305	2.750	1.445	60	2.308	1.897	13
12	2.624	33.660	2.350	1.282	60	1.769	1.359	13
13	2.312	20.127	2.733	1.419	60	2.000	1.000	13
14	-0.047	14.204	1.600	.515	60	1.615	1.256	13
15	-0.321	17.516	1.983	.898	60	2.077	.910	13
16	1.477	28.676	2.367	1.389	60	2.000	.500	13
17	2.192	25.909	2.567	1.741	60	1.923	.744	13
18	-0.427	18.269	2.400	1.227	60	2.538	1.103	13
19	-0.825	18.306	2.933	1.521	60	3.231	1.359	13
20	.041	16.985	3.017	1.644	60	3.000	1.833	13
21	1.121	15.584	3.450	1.201	60	3.000	1.833	13
22	-0.182	18.870	2.034	.688	59	2.077	.577	13
23	-2.256	18.568	2.300	1.163	60	3.000	1.000	13
24	1.288	20.580	3.150	1.282	60	2.769	.859	13
25	.723	33.529	1.600	.956	60	1.462	.269	13
26	1.517	20.418	2.150	1.316	60	1.692	.897	12
27	.220	18.574	3.424	3.317	59	3.308	2.897	13
28	-0.940	17.322	2.881	2.899	59	3.385	3.090	13
29	-0.357	19.309	3.966	3.551	59	4.154	2.808	13
30	2.254	19.505	4.525	3.357	59	3.385	2.590	13
31	-0.889	20.573	2.424	1.317	59	2.692	.897	13
32	.349	18.178	3.661	3.711	59	3.462	3.436	13
33	.268	17.345	3.220	2.899	59	3.077	3.077	13
34	-1.077	17.013	2.237	3.081	59	2.846	3.474	13
35	-0.247	17.146	4.576	2.179	59	4.692	2.397	13
36	1.093	20.396	3.322	3.636	59	2.769	2.526	13
37	1.103	21.140	4.458	2.597	59	4.000	1.667	13
38	-0.451	18.455	2.492	2.323	59	2.692	2.654	13
39	.503	18.499	5.559	1.423	59	5.385	1.256	13
40	1.082	19.366	3.448	3.936	58	2.846	3.141	13
41	.298	18.097	3.644	4.199	59	3.462	3.936	13
42	.407	19.099	3.814	2.982	59	3.615	2.423	13
43	-0.185	17.473	3.051	3.187	59	3.154	3.208	13
44	.665	19.588	3.424	3.593	59	3.077	2.744	13
45	-0.452	18.914	4.068	3.478	59	4.308	2.897	13
46	-0.455	18.813	3.559	2.596	59	3.769	2.192	13
47	1.355	19.388	3.254	2.883	59	2.615	2.256	13

ITEM	TVALUE	DF	MEAN1	VAR1	N1	MEAN2	VAR2	N2
1	-2.958	54.411	2.346	.795	26	3.161	1.406	31
2	1.033	38.904	1.615	.726	26	1.419	.252	31
3	-1.133	54.023	2.577	1.614	26	2.968	1.786	31
4	-1.457	51.565	3.115	1.546	26	3.581	1.318	31
5	-1.109	54.209	1.385	.566	26	1.645	1.037	31
6	-2.071	53.191	2.440	1.673	26	3.194	2.028	31
7	-0.069	54.866	1.632	.782	26	1.710	1.013	31
8	1.279	53.243	3.654	1.835	26	3.184	1.823	31
9	-0.379	51.619	2.077	1.434	26	2.194	1.228	31
10	-2.922	45.311	3.423	1.454	26	4.258	1.798	31
11	-0.802	53.533	2.423	.974	26	2.677	1.959	31
12	-2.042	46.582	1.808	.402	26	2.323	1.492	31
13	-0.404	53.172	2.462	.818	26	2.591	1.718	31
14	-1.427	54.964	1.423	.574	26	1.742	.865	31
15	.567	54.707	1.952	.598	26	1.839	.740	31
16	-1.432	54.751	2.000	.800	26	2.387	1.312	31
17	-1.960	52.080	2.038	.838	26	2.645	1.970	31
18	1.564	54.521	2.423	.814	26	2.032	.966	31
19	3.212	54.321	3.423	1.214	26	2.452	1.389	31
20	-0.650	54.523	2.632	1.582	26	2.710	1.840	31
21	-1.017	46.149	3.231	1.705	26	3.548	.989	31
22	2.347	43.900	2.500	1.060	26	1.935	.529	31
23	1.013	54.179	2.759	1.065	26	2.484	1.191	31
24	3.776	54.503	3.385	1.646	26	2.452	1.123	31
25	.897	47.677	1.615	.806	26	1.419	.518	31
26	-1.589	53.531	1.423	.714	26	2.355	1.437	31
27	.309	52.173	3.077	3.114	26	2.935	2.796	31
28	.050	54.623	2.538	2.578	26	2.516	2.125	31
29	1.549	49.793	3.769	3.625	26	3.032	2.699	31
30	-1.061	54.994	3.731	2.605	26	4.226	3.647	31
31	1.916	42.887	2.808	1.922	26	2.194	.895	31
32	1.196	52.880	3.385	3.366	26	2.806	3.228	31
33	.868	54.873	3.000	2.080	26	2.545	2.703	31
34	-1.134	54.219	1.846	1.575	26	2.290	2.880	31
35	-2.543	53.090	4.346	1.835	26	5.258	1.793	31
36	.355	49.966	3.000	3.280	26	2.839	2.473	31
37	-3.210	50.389	4.038	2.510	26	5.323	1.959	31
38	.422	43.592	2.154	2.455	26	2.000	1.200	31
39	-0.587	39.414	5.538	1.698	26	5.710	.613	31
40	1.916	47.002	3.231	3.465	26	2.367	2.102	31
41	2.369	51.110	3.731	4.045	26	2.516	3.325	31
42	1.498	54.926	3.577	2.254	26	2.935	2.996	31
43	.170	49.644	2.885	3.386	26	2.806	2.495	31
44	-1.148	54.731	2.346	1.755	26	2.806	2.895	31
45	1.733	54.473	4.308	2.942	26	3.484	3.458	31
46	1.633	51.035	3.462	2.018	26	2.871	1.649	31
47	-0.475	54.261	2.962	2.358	26	3.161	2.673	31

ITEM	TVALUE	OF	MEAN1	VAR1	N1	MEAN2	VAR2	N2
1	-2.637	5.076	2.538	.936	13	3.667	.333	3
2	1.150	5.804	1.846	1.141	13	1.333	.333	3
3	3.092	6.565	2.769	1.359	13	1.333	.333	3
4	1.124	2.521	3.385	1.256	13	2.333	2.333	3
5	1.897	12.000	1.462	.769	13	1.000	.000	3
6	1.481	2.327	3.000	1.833	13	2.333	5.333	3
7	-0.605	2.494	1.769	1.192	13	2.333	2.333	3
8	-0.027	2.730	3.692	1.731	13	3.667	2.333	3
9	-0.568	7.879	2.395	1.756	13	2.667	.333	3
10	-2.007	12.000	3.462	.936	13	4.000	.000	3
11	1.849	12.000	2.538	1.103	13	2.000	.000	3
12	-0.805	12.000	1.846	.474	13	2.000	.000	3
13	2.007	12.000	2.538	.936	13	2.000	.000	3
14	-0.968	2.175	1.462	.436	13	2.333	2.333	3
15	-0.544	2.123	1.846	.368	13	2.333	2.333	3
16	.000	12.000	2.000	1.000	13	2.000	.000	3
17	.241	2.975	2.154	.974	13	2.000	1.000	3
18	-1.450	2.531	2.308	.731	13	3.333	1.333	3
19	.289	2.560	3.538	.769	13	3.333	1.333	3
20	-1.387	2.451	2.538	1.436	13	4.000	3.000	3
21	1.270	2.673	3.538	1.603	13	2.333	2.333	3
22	1.443	12.000	2.385	.923	13	2.000	.000	3
23	.142	2.759	2.769	1.026	13	2.667	1.333	3
24	.800	2.502	3.231	.692	13	2.667	1.333	3
25	.791	6.120	1.692	1.231	13	1.333	.333	3
26	-0.149	2.255	1.846	.808	13	2.000	3.000	3
27	-1.919	4.294	2.769	2.859	13	4.333	1.333	3
28	-1.984	2.397	1.923	1.244	13	4.000	3.000	3
29	.120	5.031	3.769	3.692	13	3.667	1.333	3
30	-0.160	4.070	3.538	2.603	13	3.667	1.333	3
31	-0.116	5.623	2.615	1.090	13	2.667	.333	3
32	-0.026	2.880	3.308	2.064	13	3.333	2.333	3
33	-0.587	2.462	2.923	2.077	13	3.667	4.333	3
34	-1.906	2.415	1.692	1.731	13	4.000	4.000	3
35	-0.134	2.747	4.538	1.769	13	4.667	2.333	3
36	.137	3.114	3.154	3.308	13	3.000	3.000	3
37	.808	3.892	4.308	2.397	13	3.667	1.333	3
38	-1.025	3.266	2.308	2.897	13	3.333	2.333	3
39	.448	4.037	5.846	.641	13	5.667	.333	3
40	-0.273	2.855	3.308	3.731	13	3.667	4.333	3
41	-0.616	3.146	3.308	3.397	13	4.000	3.000	3
42	-0.728	2.491	3.231	1.526	13	4.000	3.000	3
43	-1.454	2.624	2.462	2.769	13	4.333	4.333	3
44	-1.149	2.787	2.231	1.854	13	3.333	2.333	3
45	.866	2.377	4.538	2.103	13	3.333	5.333	3
46	-0.712	2.719	3.231	2.192	13	4.000	3.000	3
47	.210	2.893	3.231	2.692	13	3.000	3.000	3