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ABSTRACT

There is need for early group assessment aimed at prevention of learning disorders, specifically reading disorders. An estimated 15% of elementary and secondary school students are reported to be handicapped in the area of reading. Early screening and matching of the learning ability of children with instructional programs holds promise to diminish school learning problems. From the beginning of formalized schooling, efforts have been made to analyze the task to reading. This task analysis has led from a visual or auditory approach to a meaning and code breaking approach. Most recently a model of perceptual characteristics of learners has been developed. A task-learner characteristic model is an attempt to generate a best-fit blend in instruction; that is, the learner and his characteristics are blended in the most appropriate way with the task that he is to learn. Copies of the models developed are appended. (Author/CK)

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AN EARLY SCREENING AND TASK-LEARNER  
CHARACTERISTIC MODEL OF  
PREVENTION\*\*

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## Introduction

First, let me ask that you regard what I say today as a beginning and an evolving statement. I will gladly discuss in detail and attempt to account for any of the statements made in the presentation--many of which require considerable elaboration not possible to deal with under the constraints of our time limitations. The point of view presented in this paper grows out of the need for early group assessment aimed at prevention of learning disorders. When we think of learning disorders we tend to think of the child who has difficulty in learning to read.

It seems imperative that we learn to identify a child's potential or actual reading failure at the earliest possible time in his life. We have been told that there are 8,000,000 children in America's elementary and secondary schools who will not learn to read adequately. This means that approximately one out of seven, or about 15 percent, are handicapped in the area of reading (Templeton, et al., 1969). It is generally agreed that we must work toward reducing the incidence of school failure.

The combination of early screening and matching the learning ability of children with instructional programs seems to hold promise for diminishing school learning problems. Efforts have been made by Harris (1965), Bateman (1967), Bruininks (1970), Denison (1970), and Huebner (1970) to effect appropriate matching. To a certain extent, the results have been equivocal, but the studies have been fraught with shortcomings.

### Task Analysis

Since the beginning of formalized schooling, efforts have been made to analyze the task of reading. A reading-series-approach to analysis of reading has been in use for several generations. This is a very global approach that is based on the assumption that reading is primarily a visual (sight and say) or auditory (phonics) task.

The historical progression of writing began with: 1) a picture representation of a situation, 2) then a word, 3) then a syllable, 4) then phonetic units were represented by symbols, and 5) then a list of such symbols evolved to represent an alphabet (Chalfant & Scheffelin, 1969, Central Process Dysfunction). This traditional approach to reading analysis probably led the experts in the field of reading to examine the elements of the graphic language code, which includes the graphic shapes of symbols (letters, non-alphabetic signs, acronyms, punctuation, supra-segmented phonemes), space-direction sequence, and spelling.

More recently, task analysis has taken the form of looking at meaning and code breaking (Chall, 1967). An aspect of code breaking has been explored by Gibson (1966, 1970), who has conducted one of the most intensive explorations of the reading process. At this point in time, both meaning and code breaking approaches are hypothesized constructs, or theorized analyses, deduced from some unknown data or inferential process.

### Learner Analysis

Most approaches to reading and the analysis of the task have not considered the characteristics of the learner, except on a very global basis. The notions that I have about the analysis of the learner's characteristics have been generated first from the modality concept. This concept, developed by Osgood (1957), Wepman (1960), Kirk and McCarthy (1961), simply implies that learners have propensities for dealing with information in one of the modalities of the primary senses of vision, audition, or tactual/haptic (Figure 1).

Extending the modality concept, it seems necessary to assess each child's propensity and the strength of his various skills within each modality. Reservations resulting from factor analytic data suggest that we might not be very successful in demonstrating separate skills within a particular modality. It also should be noted that I am not trying to revert to the notion of mental faculties that was abandoned long ago, but rather am trying to approach a process-versus-product type of assessment; with process referring to that which makes learning possible and product (in its simplest form) referring to that which is learned (Newland, 1969). As we think of analyzing the learner, we should also heed the caution expressed by Mann (1969), who notes that we are fractionating the concept of perception, and that this is not a valid or useful process. I might point out, however, that after Mann admonishes he tends to commit the same errors as those whom he criticizes.

With some of the above cautions in mind, I would like to present a "model" of perceptual characteristics of learners. I would like to suggest that there are five elements of perception that can be superimposed on the modality concept of separate, or relatively independent, perceptual modalities. The elements, which can be prefaced either by auditory, visual, tactual or haptic, are as follows: discrimination, motor, figure-ground, spatial relationships, and memory (which includes perceptual constancy, recall, and recognition) (Figure 2). Therefore, in each of these modalities the elements would exist so that there would be, for example, tactual discrimination, visual-motor abilities, or auditory memory (Buktenica, 1968). Presenting such a breakdown of perceptual abilities does not imply that these will be identifiable, or separate, factor analytic functions, but rather that they might provide a functional model with which we can look at the characteristics of learners and the characteristics of the learning task, or instruction process.

In addition to considering the modality concept and perceptual elements, the learner must be thought of as an information processing entity. In this regard, I would like to suggest that any analysis of the learner's characteristics has to consider the following:

Reception - The child must have the capacity to adequately receive information (screening and control of input).

Stimulus Management - This includes the routing of information as it enters the central nervous system, and might

possibly be considered the function that a pole lineman performs in guaranting that telephone messages go through. It should be pointed out that children with reading problems perform tasks slower than other children; suggesting that decision making, information processing, management, and thought processes are slower.

Storage - Storage of information is primarily dependent upon an adequate catalogue system, but space for storage is also a factor to be considered. Storage can occur without a cataloguing system, but then subsequent utilization of that information is completely confused or perhaps impossible.

Retrieval - The main concept involving retrieval is that of some sort of cybernetic feedback information system in which the person probably gains some awareness of the adequacy of his response as it is fed back into his own system. As I mentioned above, if there is not a good cataloguing system, retrieval becomes very difficult. A prototype of a good storage and retrieval system is that of the functioning of the auto parts specialist, who has many bits of information at his "fingertips" that are well catalogued and who can retrieve them in a very short period of time. Faulty retrieval can be illustrated as follows: A child who has difficulty reading will say a word on repeated drill, can point to it, repeat it, and say it again on repeated trials. However, in a matter of

seconds that repetition, or word, or concept, seems to get lost--probably because of inadequate cataloguing and storage--evidence, after the child is presented with the word again, is unable to read it, and is told the word, he might recognize it, and, in fact, point to it in an earlier part of the reading passage. Such an example suggests that a bit of information was inadequately catalogued or stored, making it difficult to retrieve from the "filing system."

#### Implications

The use of a task-learner characteristic model is an attempt to generate a best-fit blend in instruction. That is, the learner and his characteristics are blended in the most appropriate way with the task that he is to learn. One application of the task-learner characteristic model involves using the perceptual elements for assessment and instruction. It provides a framework in which to categorize existing assessment and instruction materials according to the elements of discrimination, motor, figure-ground, spatial relationships, and memory. In addition, when we consider the assessment being done within the classroom by the teacher, the approach seems to have ready and direct application to instruction. The concept of remedial-diagnosis coined by Keith Beery (1968) is illustrative of working toward classroom implementation of learner and task characteristics. According to that concept, the teacher is ultimately responsible for implementing the assessment and instructional process.



Looking at learners and tasks within the context of the classroom has the advantage of considering the social aspects of the situation, which is not possible to do in the laboratory where children are assessed and remediated individually. Although perceptual characteristics are undoubtedly important, we should not overlook the importance of the influence of group processes in learning. Utilizing group assessment, instruction, and remedial diagnostic procedures taken from the classroom, we can hypothesize increased applicability to the classroom learning situation in order to effect prevention.

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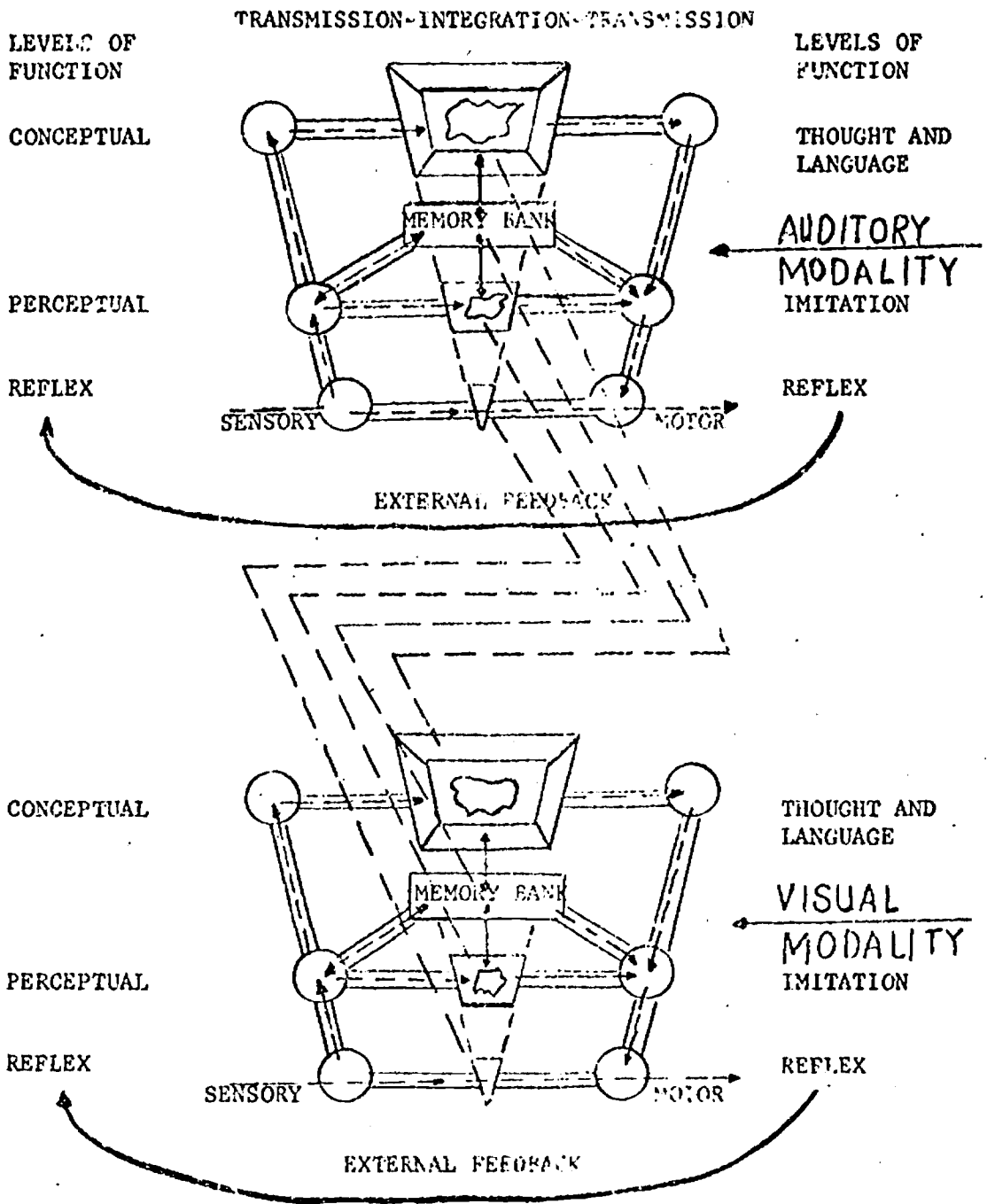
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← CENTRAL NERVOUS SYSTEM →

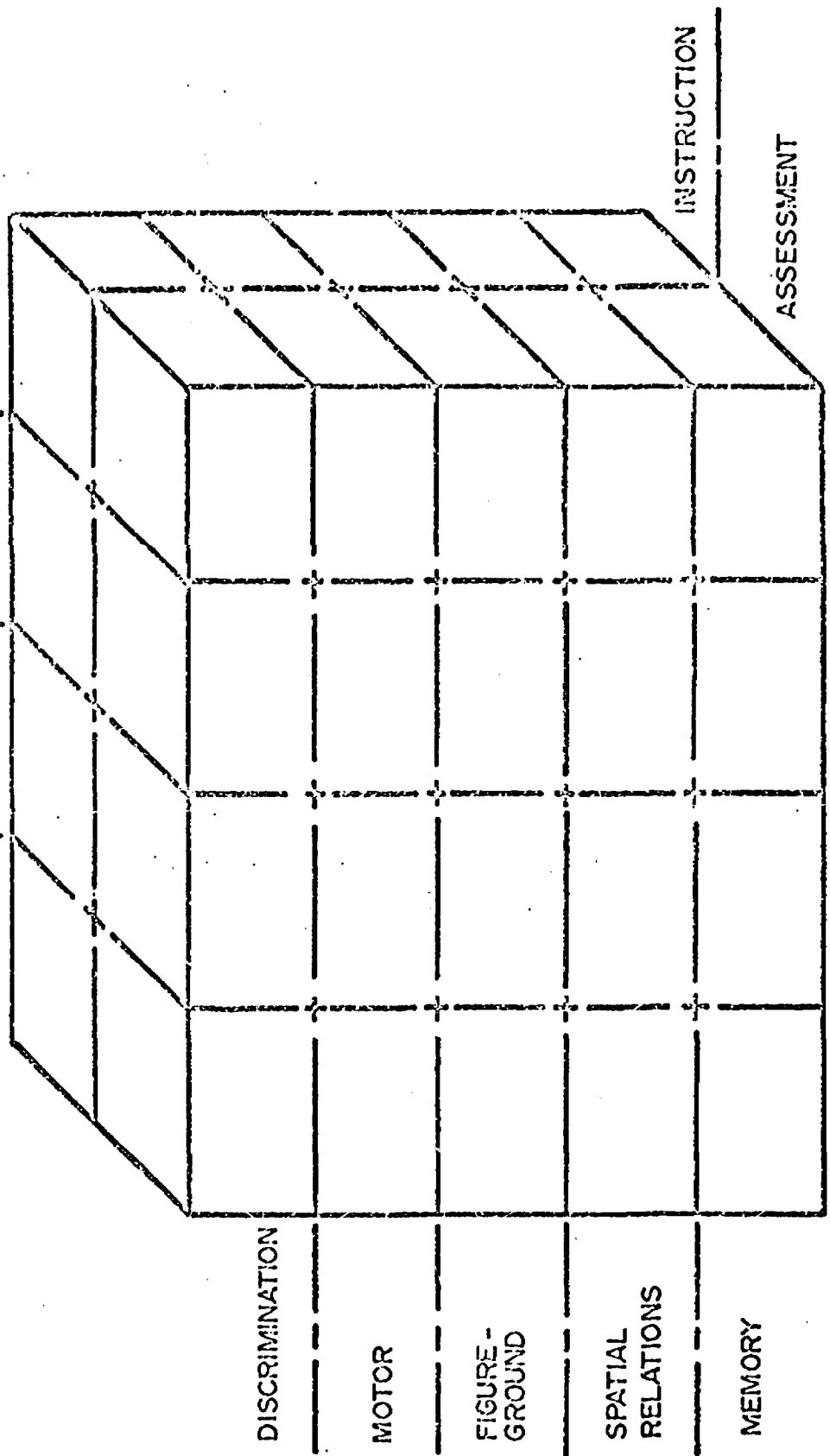


= Fig. 1. Schematic Representation of Separate Perceptual Modes - (Buktenica, 1966)

SCHEMATIC REPRESENTATION OF TASK-LEARNER CHARACTERISTIC MODEL

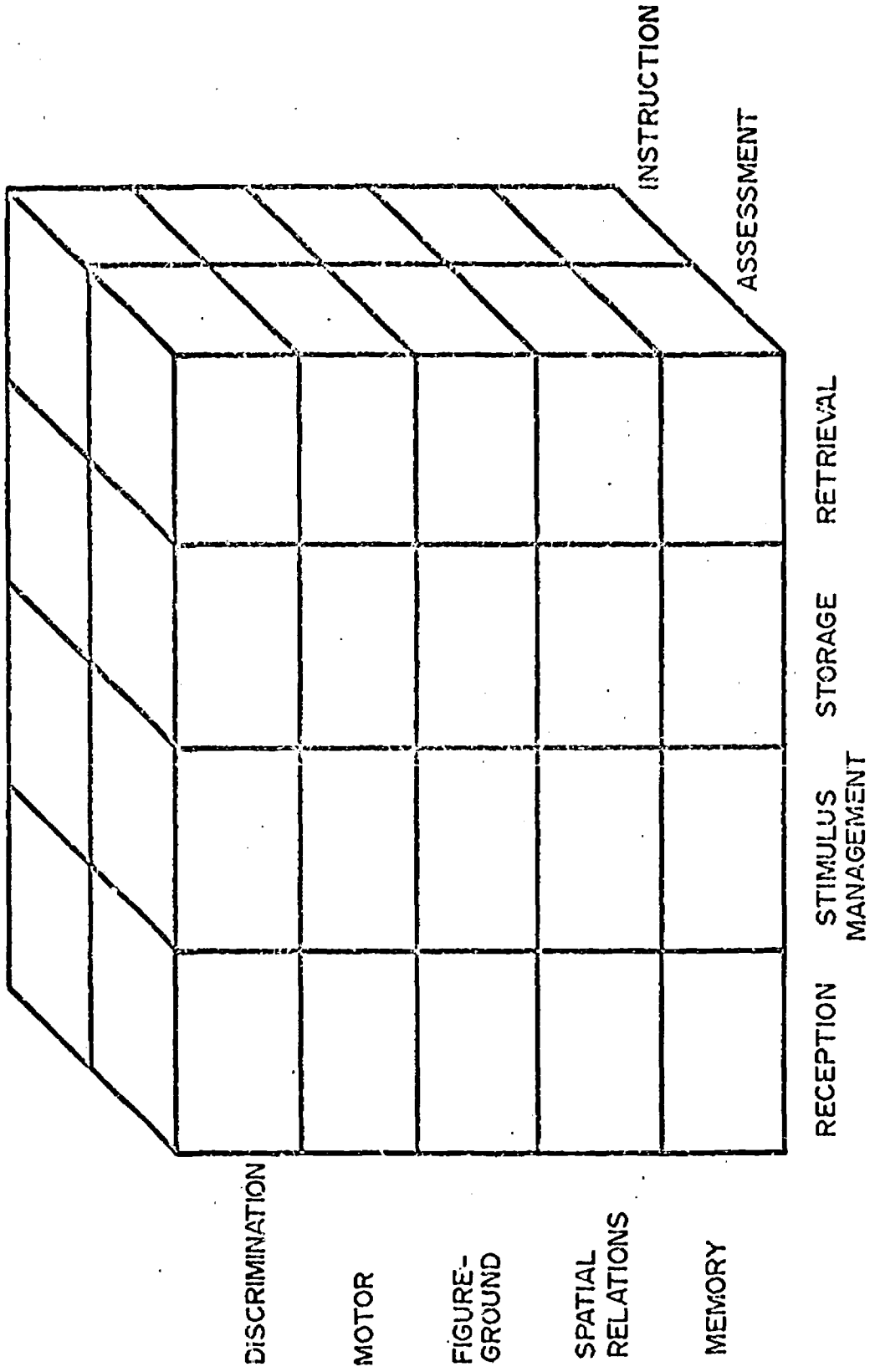
PROCESSING

RECEPTION | STIMULUS MANAGEMENT | STORAGE | RETRIEVAL



PERCEPTUAL ELEMENTS  
(TACTUAL/HAPTIC, VISUAL, AUDITORY)

SCHEMATIC REPRESENTATION OF TASK-LEARNER CHARACTERISTIC MODEL



PERCEPTUAL ELEMENTS

(TACTUAL/HAPTIC, VISUAL, AUDITORY)