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ABSTRACT

Described is a program to identify potential learning problems and learning styles in 131 kindergarten children through the assessment of global intelligence, gross and fine motor skills, visual perception skills, auditory perception skills, speech and language development, social skills, alphabet recognition, and number concepts. Standardized tests and informal assessment measures used in the screening program are described. Organization of the testing program involves eight testing stations; a professional staff of three social workers, two psychologists, three speech therapists, and one learning disabilities teacher; and 20 volunteer parents or graduate students. The program has distinguished five groups of children ranging from children needing gross motor or language experiences to children ready for the prereading program.
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KINDERGARTEN DIAGNOSTIC ASSESSMENT
OF LEARNING STYLE

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This session is the Kindergarten Diagnostic Assessment of Learning Style. I am Jean Sacatsh, Jacque Jacobs the other author, who some of you might know, cannot be with us today. Dr. Jacobs and she are in Australia at a new position at James Cooke University, Townsville Queensland, Australia.

There has been increasing concern in the past decade over children's learning problems. Some feel that early identification and intervention (Buktenica, 1971) is critical in the prevention of learning disorders. Most of the reported research projects deal with a single aspect of learning problems: medical, motor, perceptual, etc. (Harrison, 1963; Wepman, 1959). Gordon (1969) feels that there is incongruence between the design of learning materials and experiences and the learner's characteristics. This project is concerned with assessing children's learning characteristics so as to maximize learning by adjusting curriculum to each individual child's needs. Since most feel that children learn developmentally (Kulberg and Gershman, 1974) there would seem to be a need to know each child's developmental level. If this is accurate, then it may be necessary to teach children in all areas of development and not apply a standard curriculum to all children.

The areas deemed most necessary for reading and academic success, which have been supported by research are: auditory sequencing (Orton, 1937; Bannatyne, 1968), visual sequencing (Kass, 1966; Johnson, 1957) short-term memory (Katz and Deutsch, 1963), visual-motor spatial integration (Svagr, 1967; Keogh, 1965) and verbal-visual discrimination (Wilson and Fleming, 1940). If the above areas are prerequisites to reading and academic success, it appears to be evident that we need to determine where a child is functioning in these areas and start teaching him through his strengths and help alleviate areas of weakness at the earliest contact with schools, rather than waiting until first grade or later.

Most of us here, spend our professional lives identifying and/or remediating learning styles. We hoped in this pilot project, not only to identify children for

special help but to help the kindergarten teacher plan her program for all of her children.

The KDALS is the name we gave to the group of measures we used. Some standardized tests were used, and some we developed because they were pertinent to our particular needs in our schools. We wanted to use materials that were familiar to most workers and had scoring norms.

I would like to discuss these test items and methods of administration. Lastly I will consider the uses being made of the results of the tests this year and project the future of KDALS.

INSTRUMENT:

The six areas of assessment were:

1. Physical measures
2. Global psychological measures
3. Visual Perceptual measures
4. Auditory Perceptual measures
5. Language and Speech measures
6. Social skills measures

These areas are comprehensive enough to give us a quick view of a child's total functioning within our time restrictions. You have in the handout a brief summary of the items we used. We are assuming that our auditory memories need a little help while I discuss the individual items.

I. Physical Measures

Our school requires a preschool entrance physical, so we are aware of health problems when the child enters. Amblyopia testing is available to all kindergarten children prior to entering kindergarten. Hearing screening exams are given to kindergarten youngsters by a trained group of Temple women volunteers. The school nurse follows through on any deviations and reports to the kindergarten teacher and parents.

Gross and Fine Motor Skills:

Gross motor was an evaluation of body parts identification: show me your mouth, shoulders, feet, etc., ball bouncing and catching, balance beam walking and imitation of movement. This is important for an awareness of position in space and movement. This was an individual test. Fine motor was assessed during the administration of the Bender Visual-Motor Gestalt. This test was administered by one examiner to a group of three children (each with own set of Bender cards). This area is important for pencil holding as well as reproducing the figures. The child's spacing and arrangement was noted. We used it as a pass/fail item and did not score it with the norms.

II. Intelligence Test:

The Slossen was chosen as the measure of overall intelligence due to its brevity and correlation with other standardized IQ tests. Several of our youngsters had been given individual Stanford Binet Tests for early entrance. The Slossen results on these youngsters were within 5 points plus or minus.

III. Visual Perception Skills:

In Visual Sequential Memory we assessed the child's ability to retain sequentially material presented visually. This test item was administered using geometric shapes in sequential order with a five second exposure. This task is of primary importance in reading, math, and spelling. The child needs to be able to process saw as saw and not was. We choose the geometric figures instead of letters to avoid the factor of early nursery school or home training of the alphabet. We did find in testing alphabet recognition most but not all youngsters did know their letters, hence, we did not wish to penalize those few who had not been taught. We wanted to tap immediate recall.

In Visual Association the child was shown pictures of common items (i.e. trash can) and then shown another page with three non-related items and one related item to find one that was like the first picture. Visual association is the ability to meaningfully associate visual stimuli. This is highly related to reading and the ability to associate visual patterns in words. This ability is critical in how the child gains information from what he sees in the environment, and relates it to what has happened in the past. Example: the child looks outdoors and sees snowdrifts, wires down, cars

abandoned in the street. The child reasons we must have had a bad snow storm last night. Last time we had a storm like this, we did not have school, etc.

In Visual Discrimination the child was required to find an alphabet letter shown on a flash card from a field of letters of the alphabet. This task determines the child's past teaching, as well as matching shapes.

In Visual Figure Ground we tested the child's ability to separate foreground from background. A picture of geometric shapes enmeshed was presented. The child was shown a single card with one geometric shape and was asked to trace that shape in the group of shapes. Use of the pencil was again noted. The item was used as a pass/fail item.

In Visual Closure we tested the child's ability to gain a gestalt or whole on visual stimuli that was not complete. A picture of the complete item (i.e. dogs) was shown and then a picture with parts of dogs hidden in the setting from which the child was to point out the dogs. A child's results from this item did not seem to correlate with his or her results on other visual-perceptual items. We were hard put to know how to perscribe from our results.

Alphabet recognition was tested by showing the child the upper case alphabet letters in random order which they were to identify verbally. Number concepts were tested by giving the child a sheet with numbers 1-10 with two patterns of geometric shapes next to the number of which they must identify one pattern as representing the numeral. We also asked the child to say the numbers sequentially 1-10.

IV Auditory Perceptual Skills

In Auditory Sequential Memory we examined the child's ability to auditorily retain or remember by having him repeat numbers. We choose numbers rather than words and sentences (as in the Detroit test) because we wanted material that was not as easily associated and would give immediate recall. There may be some penalizing factor for children who are unfamiliar with numbers, though almost all could give the numbers sequentially.

This skill relates to remembering letter sound patterns needed to decode. This area is important in a child's ability to sound out words and then later blend them into words. Repeating exactly what you say indicates if the child remembers. Rhyming

in sequence is all a part of patterning e.g. ring, King, wing, sing; clapping rhythms is another way of getting at memory. Visual memory and auditory memory may have the common memory factor and the child may be very good or very poor, and it won't matter if it is auditory or visual. It is easy for us as adults, to see the function of memory because we are all blessed or cursed with the same problems or skills, every day of our lives. As we know, we can practice and improve our memories.

In Auditory Association we tested the ability to hear relationships in words or phrases and then give a correct response. The items were all analogies - trees have bark, people have skin. Both have a trunk but trunk does not come in a category of coverings--so categorization is a skill in this area. Developing same and different concepts, comparisons and opposites, are all part of being able to hear relationships. Cause and effect relationships, problem solving and prediction are more sophisticated levels of associating. Though parents start cause and effect training early, e.g. that is hot don't touch! You will get burned! The kindergarten teacher continues this ongoing process.

In Auditory Closure we measured the ability to hear the "rightness" by completing a sentence that should be familiar to the child. The familiarity should make the item easily remembered. The child must fill in what "sounds right." Please pass the salt and pepper. Rhyming is another way of getting at closure e.g., cat-hat b - - .

Later we would look for the ability of the child to figure out a word if a sound is left out. _ uper _ rket. (Super Market)

Speech and Language Development:

In articulation we tested how well the child produces the articulatory sounds by having him repeat words with the phonetic element in them e.g. rabbit, soap, leaf, music, valentine, car, etc. If the child can pronounce these words correctly he has some listening skills; he heard the word correctly and he has the muscle coordination to reproduce it. He has, then, a common basis for a thought process and vocabulary to build reading upon. If the child is not intelligible it is important to examine further if he understands language but cannot produce it.

In Syntax we tested the ability to use the proper grammar. We are interested in negative and affirmative use; prepositions, possessive pronouns, tenses of verbs, etc. The child is shown three pictures. The examiner tells what is happening in one of the pictures. (The pictures are-- a boy petting his dog, a girl is petting her dog, a girl is holding her dog. The examiner says "show me the boy is petting his dog.

Language expression measures the child's ability to say the selected pictures from the Carrow test with the proper syntax. The examiner would say all 3 pictures and then point to one picture and ask the youngster to say exactly what I said. The examiner drops a pencil and asks "tell me what happened?" Later on we would be looking for the child to describe an object using pertinent categories. In other words, being able to use his ability to associate verbally on his own without the examiner giving him the structure or framework for a response. We used this short item to get at the child's willingness to communicate. Research indicates expressive language is not far behind receptive comprehension if there is no motivational or emotional hang-up.

Methodology:

We tested 133 youngsters with this battery during the first weeks of the school year. Twenty parents and graduate students were trained to assist the professional staff of three social workers, two psychologists, and three speech therapists and one LD teacher. The kindergarten teachers were left free to assist and observe. Volunteers were guides to each group of three children as they passed through the 8 testing stations.

A word of explanation about the parent volunteers is indicated. Many of them were former teachers or have been trained to do volunteer work with children. All parents were known to at least one of the authors. Many of them have or had a youngster in either the speech and language class or the LD class. The use of parents as guides and "testers" is highly recommended. Not only for the assistance they supply, but for the learning experience for them. A sample comment from one parent who had guided

three very different youngsters through a busy morning, "No one will ever have to explain individual differences to me again." Mothers who had worked on the project discussed it at PTA Council and the School Board meeting. Involved parents help support a program when the kindergarten teacher begins the training program.

Each child had a folder containing the social worker interview, all of the answer sheets to the tests, and his or her own profile sheet which graphed his age norms in relation to his chronological age. It told us at a glance his auditory skills in relation to his visual skills, as well as comparing his chronological age and his mental age. All pass/fail items were also on this face sheet. These profile sheets were the basis of the Parent-Teacher Conferences that were held in November.

The 8 stations took each child about 2 hours to 2 hours 15 minutes, which is approximately the length of the kindergarten day. The guides and kindergarten teachers observed and recorded the child's behavior in the test situation if it was noteworthy. The stations approach approximated a classroom situation more closely than individual testing.

We were all concerned about doing the testing the first weeks of school. The children would not have a chance to adjust to kindergarten when we move in and test! The youngsters did not have a chance to know the routine of kindergarten and were not aware that the games and tasks we were doing that unusual.

Administratively this was the only time that 10 professional staff people could be "freed" for that length of time. We have considered testing the week before school opens, two factors militate against that plan:

1. The salaries of 10 people for one week of extra work would be prohibitive.
2. Many families (and staff) would not be available that week. Make up tests have been a problem this year, for the authors. Only five children needed to have the whole battery. We have done specific items with some children if the teacher requested it, or the guides or "testers" indicated the child did not respond as expected. Only two children were unable to respond to the testing situation. These two children were not able to respond very positively to kindergarten for the first few weeks. It quickly identified, for us, the need for an individual evaluation and conferences with parents and teacher. Adjustment to new things is a learning style in itself. We are all aware of how we do or do not cope with change!

Scoring and recording was accomplished in 10 days by the authors. Getting these results and profiles in workable shape quickly is essential. If KDALS goes system wide next year we could computerize the scoring, but then we will have to wait for the results for two or three months at least.

The kindergarten teachers then began working with the professional staff to plan programs for their children. We soon found that 5 groups emerged:

1. Children having difficulty in auditory and visual association and closure and expressive language were combined in a language experience group.
2. Children with strengths in all areas particularly auditory discrimination were ready to start the prereading program (in our system, Lippincott).
3. Children having difficulty with the Bender Gestalt, Frostig Visual Memory -- Visual Closure would be put in a visual perceptual program.
4. Children having difficulty with gross motor tasks would have opportunity to work in that area and were also referred to the physical education instructor.
5. The 5th group was children experiencing difficulty with auditory memory items. They were put into memory training groups.

The social workers communicated areas of concern to the teachers, follow-up interviews, when advisable. The teacher discussed some materials during the November teacher-parent conferences.

Results and Projections:

Support and direction for the program came from the Director of Special Services, Director of Elementary Education and the Principals of the two schools involved. They assisted in the public relations efforts with kindergarten teachers and parents, PTA Council and the School Board. Articles were printed in each of the two schools PTA Bulletins. The articles explained the KDALS program to all the parents in those two schools. All Shaker Heights kindergarten teachers attended two meetings: the first to describe the tests and procedures. The second meeting covered methods of grouping and techniques and materials to be used in teaching.

In October the volunteers and the parents of the kindergarten children, who were tested, were invited to a meeting. The purpose of that meeting was to explain what we were testing for. We showed test items and explained what we were measuring. We also related the tests to the skills needed for kindergarten learning. We did not discuss individual children's profiles, the kindergarten teachers were prepared to do that at the November Parent-Teacher Conferences.

In April, a meeting is scheduled with the first grade teachers to explain KDALS and give them ideas of how it can be utilized to plan for their first graders.

Evaluation of KDALS will primarily be the responsibility of the kindergarten teacher asking herself these kinds of questions: Was it helpful in identifying learning styles? Did it help me plan program for groups of children and individual children? Comparisons of children's KDALS results with a standardized test may give us a measure of teaching effectiveness.

One of the exciting off-shoots of the project, has been the enrichment of the kindergarten program. New materials for the specific groups are being designed, shared from other kindergarten teachers, or ordered commercially. Use of teaching time is being shifted from only large group instruction to work in small groups. One teacher is lucky enough to have 16-17 children in her two groups, she is moving ahead to what is the next developmental step. How do I assess it? What do I need to teach it? Remember that standard curriculum we taught to all children? This same kindergarten teacher had only one child that came out right at age level straight across the board. She had no outstanding strengths or weaknesses. She was average. The average, the curriculum was supposedly teaching to. It was designed for just one child.

Another exciting project is being written by one of the district's first grade teachers. She is designing a Junior Primary. She would work with those youngsters the kindergarten teacher feels needs more time and prescriptive teaching before moving into first grade. The professional staff has begun to evaluate the present instrument in terms of use in all 9 of Shaker's elementary school kindergartens next year. On the limited program we have conducted, we see value to continuing it for all of our children.