

THE CHILD WITH LEARNING PROBLEMS: OCCUPATIONAL THERAPEUTIC PRACTICE

E. C. Kellerman

University of Pretoria

1. SOME PRECONDITIONS FOR LEARNING

Although the following is mainly concerned with perceptual ability, it is only one aspect that influences a child's total learning image. A child learns only when his situation is of such a nature that it provides the opportunity for learning and if certain basic integrated patterns are present in his central nervous system. These basic integrated patterns can be divided into three categories:

(a) **Psychodynamic aspects**

This includes the child's emotional and psychic becoming.

(b) **Peripheral nervous system functions**

This includes normal sight, hearing, kinesthetic feeling and movement.

(c) **An intact central nervous system**

There are children who apparently possess all of the above to a "normal" degree; they are not intellectually restrained, they do not have serious emotional, sensory or motor problems and yet their ability to learn, understand, read, write, spell, compute and differentiate left from right is restrained. Also, they often are not able to establish good relationships. Thus, the occupational therapist uses tests to determine what the child's perceptual abilities are. In this regard, to this point, standardized tests are not yet used. However, most occupational therapists use more or less the same media that, as experience has shown, best reveal specific problems. The tests also are assembled into a battery or sequence, although they do not have to be given in a prescribed order. Usually, items requiring the child to attend and concentrate most are administered first. Still, the occupational therapist's attunement to a particular child remains one of his best leads.

2. PROBLEMS SHOWN BY WILMA

In administering the specific tests, Wilma showed the following problems:

2.1 Sensory-motor integration

2.1.1 Balance and posture

Wilma's balance is poor. She awkwardly executes all of the tests. Even though she was born with a deformed foot, she has a full range of foot movements.

2.1.2 Coordination

2.1.2.1 Gross motor coordination

She experiences special problems with contra lateral movements.

2.1.2.2 Fine motor coordination

She is able to execute the selected movements well but she is awkward and slow.

2.1.2.3 Eye-hand coordination

She has difficulty following a target with her finger. Her entire arm moves when she writes, and her writing is very inadequate. According to the **Frostig** test of eye-hand coordination, Wilma functions on a **6 year 3 month** level. [Note that Wilma's age is **9 years 8 months**].

2.1.3 Eye control

Apparently Wilma has no problems with her eye control.

2.1.4 Rhythmic sequence of movements

She can slowly do two sequences of movements. She cannot turn around completely when her arms are extended.

2.1.5 Associative movements

She has associative movements from the left hand.

2.1.6 Involuntary movements

No involuntary movements were noticed.

2.1.7 Sensory-motor integration

According to the **Beery** test of form reproduction, Wilma functions at an age level of **7 years 2 months**.

2.2 Bodily awareness

Wilma cannot identify all of the parts of her body; also, she cannot name all of the parts of her own body or that of another person. She can name her fingers while reciting a toddler rhyme. Her person drawing is a female figure (See figure 1 in the paper by Du Toit). The left arm and leg are longer than the right. The right hand has four fingers and the left only three. There is no face and the feet are not functional. The entire drawing has a "transparent" quality such as one usually finds in toddlers.

2.3 Laterality and direction

Her problem is readily evident on a kinesthetic level. Also, she is still uncertain about the concepts of right and left with reference to herself. She crosses the center-line.

2.4 Dominance

Slightly left regarding hearing.

2.5 Visual modalities for learning

2.5.1 Wilma cannot name all of the basic forms. She has concrete problems with form constancy. According to the **Frostig**, she functions on a **9 year** age level.

2.5.2 Figure-ground

Wilma experiences particular problems with this. According to the **Frostig**, she functions on an age level of **8 years 3 months**.

2.5.3 Spatial awareness

Regarding positions in space and spatial relations, according to the **Frostig**, she functions on a level between **8 years 3 months** and **8 years 9 months**.

2.5.4 Discrimination

Wilma experiences problems with the **Hereward** cards.

2.5.5 Analysis and synthesis

Wilma can integrate forms only to a **6 year** level. It is clear that she experiences spatial problems constructing mosaic patterns. With the jigsaw puzzle, a figure-ground problem is again clearly seen. Inversions are evident in constructing words.

2.5.6 Succession

(a) **Visual**: she can reproduce six concrete as well as written sequences correctly but part-whole problems are clearly evident.

(b) **Hearing**: she knows the days of the week, the months of the year and the alphabet to S.

2.5.7 Memory

(a) **Visual** (short-term): she remembers up to four objects and pictures. With the **Keyway** stick test, she paired four patterns but with inversions.

(b) **Auditory** (short-term): she remembers numbers to a **10 year** level. She finds it difficult to repeat a passage she has read. Her long-term memory is hardly any better.

2.6 Transpositions

When Wilma transcribes, the following problems clearly show themselves: (a) eye-hand coordination; (b) form constancy; (c) spatial awareness; (d) analysis and synthesis.

2.7 Summary

As indicated from the foregoing, Wilma experiences visual and auditory perceptual problems. She has a defective bodily awareness. Her balance is poor and she experiences problems in

letting her body function as a coordinated whole. Her spatial orientation is poor and so is her eye-hand coordination.

3. OCCUPATIONAL THERAPEUTIC INTERVENTION

The entire program of occupational therapy is graduated to include all aspects of perception. It is begun with the sensory-motor and is worked through to a linking up with the cognitive. The activities regarding a specific problem also have to be accurately graduated from kinesthetic-three dimensional, two dimensional to abstract understanding. Only that part of the therapeutic program will be presented that involves Wilma's poor spatial awareness.

3.1 Bodily awareness

Bodily awareness, laterality and direction form part of a child's understanding of spatiality. Adequate understanding of one's own body is constituted from the following three components: body-image; body-concept and body-schema. From these the child lived experiences his own body in terms of body parts and their connections and in terms of an implicit body-schema that is necessary for balance and posture. If any of these are not adequately defined, this **directly influences** a child's **eye-hand coordination** and his perception of **himself, other people and things in his environmental space**.

3.1.1 Identification of parts of the body

- (a) herself in front of a mirror.
- (b) the therapist.
- (c) a doll.
- (d) a picture.

Graduate from the general to the specific, e.g., from the body to the head, arm, elbow, index finger, leg, hip, etc.

- (e) name the functions of the sense organs and limbs.

3.1.2 Shape and size of body parts

- (a) Draw the child's outline on a large piece of paper placed against the wall. Allow her to name the different parts and color them in while she stands in front of the drawing of herself.
- (b) Measure and compare arm length, leg length, etc.

- (c) **Point out** joints to the child, namely, shoulder, elbow, wrist, etc.
- (d) **Ask how many** of each part she has (e.g., two arms, one mouth).
- (e) **Let her cut out the whole figure.** Cut the arms and legs at the joints and let her glue them together again.
- (f) **Draw** the child's face on a mirror and then help her fill in the sense organs in the correct places. Then let her draw this on paper.

3.1.3 Joints and functions of body parts

- (a) **Point to** the above sketch and verbalize.
- (b) **Kinesthetic awareness**, e.g., arms are swung, shoulders are shrugged, head is tilted and neck moves; bend and straighten elbow (use coloring activity), knee bends (foot rises), tap with fingers, cutting motion with fingers.
- (c) **Functions** of limbs and sense organs.
- (d) Introduce the **concept of position** in space by verbalizing, e.g., the head is on top of the body, the arms are alongside the trunk.
- (e) **Cut out and glue** together as already mentioned. Paper dolls or "jointed figures" are useful here.

3.2 Laterality and direction

Definitions:

Laterality is the intrinsic idea of the two identical parts of the body that are named differently. One of these two parts is usually dominant, hence left or right dominates.

Sense of direction refers to the intrinsic knowledge of left and right that must be used in everyday dealings of people.

3.2.1 Describe how the body is divided in half by a center line

3.2.1.1 Explain to the child in front of a mirror

- (a) Take a string and divide the body in the middle. Explain that everything a person has **two** of are on **both sides** of the body.
- (b) Everything which a person has **one** of is on the center line (e.g., nose, mouth, navel).

3.2.1.2 Draw an outline of the child's body on a vertically positioned paper and draw the center line through the nose, mouth and navel in such a way as to divide the figure into two halves.

3.2.1.3 The child now colors the two halves with different colors for the sake of a clear visual image of these two halves. (Note: only re the above: **Do not name the halves left and right** because cross laterality plays a role here and the names might only confuse the child).

3.2.1.4 Two-dimensional activities for further stabilization

- (a) Draw a vertical line corresponding to the child's center line on the blackboard or on a piece of paper placed against the wall.
- (b) With herself as the frame of reference, she must identify the right and the left sides of the paper or blackboard.
- (c) Firm up this concept further by means of coloring activities, printing, pasting, etc. alternating on the left and right sides of the paper or blackboard. Repeat points (a), (b) and (c) but now with the paper on a table, for example.
- (d) Against the wall again (or on the blackboard), in a graduated way, introduce:
 - (i) Above-left, above-right, below-left, below-right.
 - (ii) From above-left to below-right. From above-right to below-right.
 - (iii) After that, from **top left** corner to **bottom right** corner and from **top right** to **bottom right** corner, etc. (Note: always work from top to bottom and from left to right in correspondence with the course of reading and writing).
 - (iv) With the help of a felt board, her space is limited to a specific area with respect to which there is work from top to bottom and from left to right. Allow animals to jump, run or fly in the different directions.
 - (v) Graduated activities on a vertical level.
Once again, in the delimited area, build with blocks. Place one block in the **center**, another **in front of** the center block, another **behind**, one to the **right** and another to the **left, under, on top**, etc. With the help of games such as this, her already established concepts

can be consolidated and it can be seen where there are still gaps.

(vi) Following this, the block patterns are introduced. Wilma has to copy a pattern that is first constructed by the therapist. After doing this, she has to name the blocks according to their specific placing (e.g., "the white block walks from the top left to the bottom left"). Finally, she must place the blocks according to the therapist's descriptions.

Further graduations take place when more elements or when speed are introduced. All of the above activities have to be thoroughly practiced and under no circumstances does one proceed to the following activity before the child has a thorough grasp of the basics engaged in. Each activity first has to be performed without any hesitation and mistakes. Only then is the child in a position for more formal perceptual instruction such as, e.g., training in spatial relations, figure-ground, form constancy and the higher cognitive functions which include visual discrimination, analysis and synthesis, sequencing, memory and transpositions.

4. PROGRESS REPORT

4.1 Sensory-motor functions

- (a) **balance and posture:** Wilma's balance is still poor.
- (b) **coordination:**
 - (i) her **gross and fine motor coordination** have improved.
 - (ii) her eye-hand coordination is still poor.
 - (iii) regarding her eye-hand coordination, Wilma has shown a great deal of improvement.
- (c) **rhythmic sequence of movements:** she can now perform three sequences of movements.
- (d) **associative movements:** she still has associative movements.
- (e) **sensory-motor integration:** according to a retesting with the Beery on November 1, 1976, she is still on a **7 year 2 month** level.

4.2 Bodily awareness

Wilma's bodily awareness has definitely improved. This is also reflected in her drawings of a person.

4.3 Laterality and direction

Regarding these, she is now much more confident. She has a good grasp of left and right and of cross laterality with reference to herself.

4.4 Visual modalities of learning

- (a) Wilma's form perception has improved noticeably.
- (b) She still experiences problems with **figure-ground differentiation**.
- (c) Concerning spatial awareness, her perception of **position** in space and spatial **relations** has improved.
- (d) She still experiences problems with **analysis and synthesis**.
- (e) Her **visual memory** has improved noticeably.

4.5 Summary

The above-mentioned improvements were shown after Wilma attended 16 therapy sessions. However, her greatest improvement was on an emotional level. Initially, she was frightened, ashamed, retiring and said little. At first, she spoke in a high, squeaky voice. By establishing a relationship of trust with her, gradually she became more open and much more adventurous. A talent for the dramatic also became evident.

Wilma now can be described as a spontaneous child who shows an interest in what comes her way (This includes her school work). She began with a very negative outlook and is now much more positive. Also, she has enrolled in a program at the Department of Physical Education (University of Pretoria) where concentrated attention will be given to her very weak muscles and poor balance.