

Ideas for Working With Students With Difficulties in Visual/Spatial Perception, Processing, and/or Recall

Outline figures using a rope placed on the floor. Ask the child to look at two shapes and tell whether they are the same. If he cannot do so by looking, have him walk on top of the rope to see if the figures feel the same (Johnson & Myklebust, 1967, p. 255).

To help children feel the shape of numbers, have them feel numerals and symbols made of sandpaper, yarn, or dried glue, write in a pan filled with sand or salt, use chalk or a wet finger to trace figures projected onto a chalkboard, or utilize a magic slate as they say the name of a figure orally (Adapted from Owens, 1974, p. 99).

Use cutout numbers and symbols, or magnetic ones, for a child to use in copying a problem from the chalkboard. Point out errors so the child can correct them (adapted from Owens, 1974, pp. 97, 98).

Use large print symbols and numerals. Kratochwill & Severson (1974, p. 13) found that children with perception problems learned more efficiently and with fewer errors when large print was used.

List several math symbols or problems and ask students to select the one that is different. Draw lines around each one to be sure the student sees the symbol as a unit (adapted from Owens, 1974, p. 97).

Have students match different-size cards with the appropriate-sized envelope (Johnson & Myklebust, 1967, p. 258).

Ask students to match word cards with cards depicting math symbols (Owens, 1974, p. 97).

Use cards with dots to help the child relate quantity with the visual symbol. Use the same configuration of dots until he or she learns the symbol. Then change the configurations so the student does not think the number refers only to a specific arrangement of dots. To involve the sense of touch, use cards with raised dots (Johnson & Myklebust, 1967, p. 262).

Encourage students to discuss procedures, since dictated problems are written from left to right, while many solutions require a pupil to work from right to left. In some cases the child must work from top to bottom, e.g., fractions.

Provide a chart with the numerals in sequence so a child who cannot remember the appearance of numbers can refer to it (Johnson & Myklebust, 1967, p. 248).

Prepare a tray with several numerals on it, either three-dimensional or written on cards. Allow the student to look and/or feel, and say each numeral. Increase the number of numerals as he or she improves (Owens, 1974, p. 91).

Display a poster with pictures of several sets of objects. Now remove the poster and ask the child to tell what he or she saw, using numbers (Owens, 1974, p. 91).

Meyers & Burton (1989, p. 48) make the following suggestions:

1. Provide grids for students to use in aligning problems.
2. Reduce the amount of copying necessary.
3. Use uncluttered handouts.
4. Provide auditory means of learning—using recitation, records, tapes, or peer assistance.
5. Allow extra time for seatwork and tests.

Ideas for Working With Children With Auditory Perception, Processing, and/or Memory Problems

Use clear and concise explanations.

Give a limited number of oral directions.

Tape materials for students to use.

Have peers give individual explanations.

Use highlighting, arrows, and lines to show significant information.

Utilize overheads with overlays.

Encourage students to describe the problem orally to themselves.

Use visual and kinesthetic strategies, concrete and pictorial examples, flow charts, and diagrams. (Meyers & Burton, 1989, p. 49).

Some additional ideas:

Speak slowly and include more pauses (Frostig, 1968, p. 242).

Reduce the rate and syntactic complexity of presentations (Simon, 1985). Repeat both information and questions (Wiig & Semel, 1980, pp. 406, 407).

Keep oral work to a minimum (Johnson & Myklebust, 1967, p. 247).

“Drop beans into an empty can to create auditory addition exercises” (Sovchik, 1989, p. 136).

Play rhythm and clapping games so the child can imitate a pattern of rhythms.

Have the student read a problem and determine whether he or she can associate the spoken word with the visual symbol (Johnson & Myklebust, 1967, p. 268).

Ask the child to convert a dictated problem to a symbolic one by using magnetic numerals and symbols (adapted from Johnson & Myklebust, 1967, p. 268; Owens, 1974, p. 98).

Have the child draw pictures to illustrate the problem and show what actions are needed after listening to a taped problem (Owens, 1974, p. 99).

Help the student organize material to improve recall (Johnson & Myklebust, 1967, p. 19).

Present materials in context. Help the child recognize contextual clues (Johnson & Myklebust, 1967, p. 119).

Ideas for Vocabulary Development

Owens (1974) has an extensive list of ideas for helping students learn vocabulary. Below is a summary or adaptation of a number of these:

More and Less

Arrange objects in groups and ask the child if he wants more or less. Add or remove according to his directions (p. 92).

Show pictures, asking the child which has more or less items (p. 92).

Build sets of objects, beginning with one of each item, and ask which is more/less (p. 92).

Play, “I Am Thinking of a Number,” a group game in which each student is given a card with a numeral on it. The teacher says, “I am thinking of a number one less than 7.” The student

who thinks he has the card with the correct number on it stands up. The remaining students decide whether the pupil is correct (p. 92).

Play a group game called "More or Less." Use 36 index cards numbered from 1 to 18 (two cards for each number). After shuffling the cards and placing them face down, the first player draws the top card and shows it to all the players. The same player draws a second card and shows it to the group. The player must compare the second number with the first and say: "It is more" or "It is less." Students may also be asked to tell how much more or less. When all the cards are used, they are reshuffled and play begins again (adapted, p. 102).

More or Fewer

Ask a student to match two different sets of objects. If the sets do not have the same number of items, the student is to tell which has more and which has fewer (p. 92).

Play "Musical Chairs" (p. 92).

Between

Place three different items in a row. Ask the child to tell which object is between the other two. Provide additional items and ask the child to put each one between the two objects that you name (adapted from p. 92).

Place a rope on the floor and have students stand on the rope. Ask students to tell who is standing between whom (adapted from pp. 93 and 95).

In Front of and in Back of

Line up several children, leaving spaces between them. Describe what is happening by saying, "I'm going to get in line with you. I will stand in front of Bill. Now I'm going to move and stand in front of Joe. John, would you like to come stand in front of Mary?" Add the phrase "in back of" to your description. Students also may choose their place in line and tell who they are in front of and who they are in back of (p. 93).

Above, Below, Top, Bottom, Middle

Using shelves, place objects on dif-

ferent shelves and describe their positions using the words to be taught. Later, ask the students to describe where they place items (p. 94).

Lowest, Middle, Highest

Ask a student to arrange numbers on a flannel board in order from lowest to highest or from highest to lowest. Have the child choose the number in the middle. Describe the child's actions. Later, ask the child to describe what he is doing (p. 94).

Large, Larger, Largest or Small, Smaller, Smallest

Arrange circles or squares cut from felt. Use the appropriate vocabulary to describe how you placed the shapes. The child may superimpose the shapes to compare sizes. Ask the student to describe his or her actions (p. 94).

Long, Longer, Longest, Short, Shorter, Shortest

Use verbal activities to help the child see differences in the lengths of two lines. Play one long and one short tone of the same frequency, and ask the student to tell whether they are the same. Next, use a tone while simultaneously drawing a line (about one inch per second). Have the child describe the differences that he sees (pp. 94, 95; the same idea is in Johnson & Myklebust, 1967, p. 257).

Greater Than, Less Than, Equal

Play a bingo game that utilizes these symbols (p. 95).

Ordinal

Have students indicate the ordinal position of specific objects that you name or to indicate the ordinal position of pegs in a peg board (p. 95).

Closest, Farthest, Beginning, End, First, Last

Line up toy cars near a garage. Ask questions such as the following: Which car is closest to the garage? Which is farthest away? Which car is at the beginning of the line? At the end? Which one is first? Last? (p. 96; also in Johnson & Myklebust, 1967, p. 260).

Plus, Minus

Read problems and translate the words from English to math, e.g., $3 + 4$ means 3 and 4 or 3 add 4 (p. 97).

There Exists

Explain that this term means "we can think of" (Datta, 1989, p. 2). For example: "There exists a number to which we can add 3 and get an answer of 8." ("We can think of" would not be a good definition in higher-level mathematics.)

It Is Obvious

Clarify this term by telling students why it is obvious (Datta, 1989, p. 2).

Superlatives

Use toys with pieces of graduated sizes to help children develop intuitive feelings about sizes (Johnson & Myklebust, 1967, p. 257).

Ideas for Developing Sequential Skills

"Have the child listen for a series of drum beats and simultaneously count (saying the number each time he hears a beat). When he achieves success, ask him to open his eyes, listen to the drum beats, and make a mark on the paper for each sound he hears. . . . After he has learned to listen, count, and mark correctly, have him recount his marks, this time without the aid of the drum. Encourage him to use a steady, even rate while counting. Make certain that he touches each figure as he says the numbers" (Johnson & Myklebust, 1967, p. 260).

Have the child place pegs in a hole or string beads as he says the number while counting (Johnson & Myklebust, 1967, p. 260) or to clip clothespins to a line (Sovchik, 1989, p. 141).

Use a number line to help teach the proper visual sequence of numbers (Johnson & Myklebust, 1967, p. 261.)

Display charts that illustrate the sequence for working problems.

Use a green dot to indicate where to start for calculations, arrows to indicate the direction in which to work, and a red dot to show where to end the process (Fitton, 1991).

Show a picture. Ask the student to describe what is happening. Next,

have him write a mathematical sentence to describe the picture. Then reverse the activity, having the child draw a picture to illustrate a mathematical sentence (adapted from Owens, 1974, p. 98).

Play a game such as "What Number Am I Thinking Of?" Have students take turns making up problems. (The game can be made more difficult by including problems with several steps [Owens, 1974, p. 103]).

Use lattice multiplication for a student with short-term memory so the sequence is not so long.

BIBLIOGRAPHY

Datta, D. K. "Common Causes of Math Anxiety and Some Instructional Strategies," *Math Notebook* 7:5, 6 (1989), pp. 1-8.

Fitton, G. "Methods and Materials

for Teaching Children With Special Needs." Class Lecture, Fitchburg State College, Fitchburg, Mass., October 2, 1991.

Frostig, Marianne. "Education for Children With Learning Disabilities," in *Progress in Learning Disabilities*. New York: Grune & Stratton, 1968, vol. 1, pp. 234-260.

Johnson, Doris J. and Helmer R. Myklebust. *Learning Disabilities: Educational Principles and Practices*. New York: Grune & Statton, 1967.

Kratochwill, Thomas R. and R. A. Severson. *Individualized Diagnosis and Program Planning for Process Learning Deficits in Mathematics*. (Presented at the Annual Meeting of the American Educational Research Association, April 1974, Chicago, Illinois) (ERIC Document Reproduction Service No. ED 091 878).

Meyers, M. J., and G. M. Burton, "Yes,

You Can. . . Plan Appropriate Instruction for Learning Disabled Students," *Arithmetic Teacher* 36:7 (March 1989) pp. 46-50.

Owens, J. *Project Success for the SLD Child, Curriculum Modification*. Wayne, Nebraska: Carroll Public Schools, 1974. (ERIC Document Reproduction Service No. ED 089 483).

Simon, C. D., ed. *Communication Skills and Classroom Success: Assessment of Language-Learning Disabled Students*. San Diego: College-Hill Press, 1985.

Sovchik, R. J. *Teaching Mathematics to Children*. New York: Harper & Row, 1989.

Wiig, Elisabeth H. and Eleanor M. Semel. *Language Assessment and Intervention for the Learning Disabled*. Columbus, Ohio: Merrill Publishing Co., 1980.

Separate Article
Removed