What are Problem Solving-Skills?

We are constantly engaged in problem solving, whether it be getting out of a traffic jam, programming the VCR, or doing a crossword puzzle. The solution to any problem, concrete or abstract, requires certain basic mental skills like memory, planning, and reasoning. Many children who are deaf-blind, however, because of limited visual and auditory information, are not able to independently solve the typical problems which arise in their physical worlds such as opening a door, going around an obstacle, learning how a new toy works, or searching for a lost object. Children who do not experience success in these situations are often unwilling to tackle new problems and can become passive or unmotivated to explore their environments. They may even “learn” to become helpless and overly dependent on others.

Charity Rowland and Philip Schweigert have designed a project to help children who are deaf-blind develop the skills to solve real-life problems. Dr. Rowland and Mr. Schweigert recognized that the solutions to many typical problems are well within the grasp of most children. Consider the example of a ball rolling under a chair. There are several possible solutions, such as using a stick to get at the ball, asking someone for help, or going behind the chair to gain access. Each solution requires cognitive skills such as recognizing obstacles, anticipating the whereabouts of the ball, engaging in a systematic search, or perceiving other objects as tools. But Dr. Rowland and Mr. Schweigert believed that the traditional ways of learning cognitive skills—sorting shapes or counting objects, for example—would not prepare these children to become better problem solvers.

Their approach was to observe, instead, how children deal with “everyday” problems, identify what skills were naturally involved, and then think of new and enjoyable learning activities that could be implemented in school and at home.

How can we assess these skills?

The project developed two instruments to assess problem-solving skills. Dr. Rowland and Mr. Schweigert saw the need to develop “user-friendly” tools to help parents and teachers understand their children’s abilities. One is the “Home Inventory of Problem Solving Skills,” or HIPSS, which was designed for parents. The HIPSS lists 33 important problem-solving skills, such as handling, exploring, avoiding, assembling, finding, using, or activating household objects. Parents are asked to think about what their child does with objects around the home in everyday activities (e.g., using toothbrush, cooking, brushing the dog,
putting toys away) and check off the statement that best describes their child’s ability in the skill area. Three of such skill areas are illustrated in Figure 1. The other assessment tool, designed for educators, is the “School Inventory of Problem Solving Skills,” or SIPSS. The SIPSS is an inventory of the same 33 skill areas, but emphasizes those problem-solving situations that might arise in the school and classroom (e.g., looking for sandwich, turning on the computer, locating classroom, putting Legos together). On the SIPSS, space is provided to indicate in which classroom activities each skill is demonstrated and whether opportunities are provided for the student to use each skill.

Although both the HIPSS and SIPSS can be scored, there are far more important outcomes. These instruments

• Document that all children who are deaf-blind exhibit at least some basic problem-solving skills. These skills are usually overlooked in more traditional forms of assessment.

• Highlight skills that are involved in typical home and classroom routines and provide multiple examples of each skill. No special tasks, materials, or instruments are required.

• Help parents and teachers think of everyday activities as natural opportunities for children to gain experience and confidence in solving problems.

• Suggest the materials and situations that can promote greater independence in problem solving skills.

• Point to the similarities and differences in the problem-solving opportunities a child might have between home and school.

How Can We Promote Problem-Solving?

Once the assessment of a child’s problem-solving skills is completed, intervention programs for school and home can be designed. In this project, the HIPSS and/or the SIPSS were completed for 105 different children with deaf-blindness. For 68 of those children, both the HIPSS and the SIPSS were completed. The children were from the states of Washington, Oregon, New York, Texas, Vermont, Maryland, Indiana, and Massachusetts. Within the state of Oregon, Dr. Rowland and Mr. Schweigert worked with teachers, therapists, and parents to identify and create active learning experiences to promote problem-solving skills. The SIPSS was often used to generate an inventory of the opportunities that were occurring already for other students in the classroom to use each skill. This information was then used to suggest ways to address specific skills for the targeted student.
Problem-solving skills give children independence and the ability to adapt to different situations, materials, persons, and environments, and allow them to participate more meaningfully in activities of everyday life. These skills promote self-confidence and motivation. Through their research, Dr. Rowland and Mr. Schweigert have identified some effective ways to promote these important skills in normal daily routines:

- We tend to do things for our children to “help them” or save time. Whenever possible, give children the opportunities to perform or actively participate in even the most mundane tasks (e.g., wiping face with cloth, searching for coat, unwrapping candy, putting used napkin in trash). Inherent in these tasks are basic but essential problem-solving skills. Just as important, each time a child solves a problem, no matter how simple, the child’s motivation and self-confidence are raised.

- We can think about how familiar items (e.g., comb, milk container, liquid soap dispenser, light switch, music cassette box, candy wrapper) can be used to teach exploration, access to, and use of objects. Children who gain experience with a greater variety of items that provide opportunities to use problems-solving skills benefit from increased cognitive opportunities and, often, communicative opportunities.

- Assessment of problem-solving skills might best be done in the context of everyday classroom and home activities by persons who are familiar with the child.

- If we think about basic routines (e.g., holding a hair brush the right way, inserting a straw into a cup, or turning a door knob) as problems to be solved, the opportunities for helping a child gain cognitive skills are almost limitless.

- Even though a child may learn a particular skill with particular materials (e.g., opening the lid of a container), one cannot presume that the child will “generalize” that skill to other situations and materials. It is, therefore, important to provide many “generalization opportunities.” That is, one should teach the same skill in different routines. Taking a cookie out of a jar, a toy out of a toy chest, and a sandwich out of a bag are examples of the same basic skill, but knowing how to do one does not necessarily mean that the child who is deaf-blind knows how to do the other.

- It is very important that parents and teachers communicate with each other about what skills they observe in the child. Disparities might exist in the opportunities a child may have to engage in problem-solving at home as opposed to in school. Look at these environments to see how opportunities for problem solving may or may not be present. Notice what problem-solving skill areas have or have not been observed. Consider all the ways to expand, not necessarily duplicate, the problem-solving experiences a child that a child may face.

- We can observe other children to see how they manipulate and explore materials to discover tips about how others approach or take advantage of problem-solving opportunities. These tips can suggest ideas for designing active learning experiences for the child who is deaf-blind.

- We can make the “problem” to be solved increasingly challenging for the child. Having mastered the basic skill (e.g., walking to the slide from 2 feet away), the child can draw upon his or her experience to attempt the same task under different or more difficult conditions (e.g., locating the slide from a greater distance or from a different starting point).

For more information about this project, or to obtain copies of the most recent versions of the HIPSS and SIPSS, contact

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Dr. Rowland and Mr. Schweigert are continuing to study the validity and utility of these assessment instruments in a current project on creating classroom environments that nurture independence for children who are deaf-blind.

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