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# Appendix A

## Some Questions Worth Answering

### **What causes delayed development of spatial and/or phonological awareness skills?**

This is a good question, frequently asked, and usually answered with speculations rather than hard facts. In general, there are two causes for this kind of delayed development. The one that applies most often by far (about 96% of the time) is that Mother Nature is not fully predictable; “age-expecteds” are always approximate. Some very normal children are late bloomers, whereas others are early. In other words, the seeming “delay” is actually a normal variation, an “individual difference,” that is incompatible with the school calendar.

The second possible cause is an identifiable organic deficit. For example, children with cerebral palsy often have impaired spatial awareness skills, as do children with a history of seizures, significant birth trauma, and so on. Children with a history of delayed language development, speech articulation problems, or chronic ear infections often have impaired phonological awareness skills. Although this latter, organic-based deficit, group is much smaller than the former, it is likely that some percentage of the former group, despite an uneventful history, really have experienced some neurophysiological insult that was never identified and does not manifest in any obvious way.

In any case, the cause—identified or not—should not affect the treatment recommendations. It does, however, affect prognosis. I am more optimistic about treatment outcomes for children who appear to belong to the “unpredictable Mother Nature” group, but that does not prevent me from making the same treatment recommendations for the organic-based deficit group. However, I do accompany my recommendations regarding this latter group with a fair number of qualifying statements. Many of these children do not respond optimally to remedial training, but the effort should be made.

### **Should the SASP Curriculum be used with children who do not have spatial awareness problems? Is it useful to try to “push” them ahead a bit?**

There is no real harm in a little pushing as long as the push is tempered by good judgment. The SASP will not make a “wonder-child” out of an average child, and pushing too hard is just as bad as placing the child in a too-difficult school environment, especially if he or she is then made to feel a failure because of an inability to meet hoped-for goals. On the other hand, a little “fine-tuning” of already established skills is usually helpful; it improves efficiency.

**How long will it take for these activities to eliminate the child's classroom problems?**

Improving a child's spatial awareness skills will not automatically improve school performance. They are only learning aptitudes that have direct effect on one's *ability to learn from standard instructional programs*, as well as on the ability to recognize the underlying systems of reading, spelling, writing, and arithmetic. Therefore, the child who lacks some of these skills and is also markedly behind in reading, for example, will still be behind in reading after his or her analysis and organization skills have improved. The child will be better prepared to learn from the instruction, and instruction will make more sense to the child; however, he or she still has to be taught.

**Does mixed hand-eye dominance have an effect on learning?**

The notion that there is something wrong about wanting to "sight" (e.g., through a microscope) with the eye that is not on the same side as the preferred hand is very robust. The idea keeps popping up, only to fade away again because there is no valid evidence to support it. What evidence is available on this topic shows that just as many good as poor school achievers demonstrate mixed hand-eye dominance.

**Are there any quick cures I should try to help a child learn more easily?**

We humans are eternally hopeful and gullible, especially when we are concerned about a serious problem that has affected someone we care about. I have no "magic cures." Rather, I urge you to accept the fact that no valid magic cure has yet come along and, until it does (and is documented with the proper evidence), the best way to help the children discussed in this book is by applying rational, well-documented *educational* concepts and practices. Make sure that the child is "ready" to learn what you are trying to teach, that is, ready in respect to developed basic aptitudes *and* the information the child is assumed to have as he or she begins the next lesson. *Do not waste resources (energy, time, emotions, money) on unrealistic promises, regardless of the college degree(s) of the person who offers them.* If tempted by a promise of a "cure," ask for hard evidence. Also, avoid concluding that "we should give it a try; even if it doesn't help, it won't do any harm." Wasting money is foolish; wasting energy, time, and emotions is harmful.

**Should the child be evaluated by a speech-language pathologist, an occupational therapist, and an eye doctor?**

These are important considerations. The child who has impaired vision or hearing, and/or inefficient functional visual skills, and/or difficulty speaking clearly, and/or trouble manipulating a pencil is at risk for school learning difficulties. The child should be evaluated professionally and treated if problems are identified. Each of these considerations is discussed in the following paragraphs.

Regarding vision, be aware that *20/20 is not enough*. Far-sighted children and children with poor binocular abilities very often have clear (20/20) visual acuity without glasses. They read the small letters on the pediatrician's and school nurse's charts without difficulty, but they get their good eyesight at a

cost: They have to exert effort beyond what should be necessary. The effect is early onset of fatigue, difficulty sustaining at near-situated visual activities, a tendency to avoid close work, and, in many, *a delay in the development of spatial awareness*. Do not settle for the reassurance of a 20/20 diagnosis. Every child should have a full examination by an eye doctor. Make sure the eye doctor rules out binocular problems and farsightedness (the latter by dilating the child's pupils with a drug that deactivates the focusing muscles within the eyes that enable the farsighted child to see 20/20 letters). If glasses are prescribed, get them and see to it that the child wears them full time while indoors (and outdoors if the child so chooses). Even though the glasses do not improve the child's eyesight, they will improve efficiency, and that is important for more reasons than can be explored in a book such as this. Providing glasses for the farsighted child is analogous to improving the miles-per-gallon performance of a car.

Hearing testing does not seem to follow the same dictates. The school nurse who screens for hearing impairment with an audiometer typically obtains valid and reliable information. You can be reasonably assured about the child's hearing if he or she passes that test. But make sure that the test is done.

Speech articulation is a developed ability and therefore the question often arises about whether inarticulate speech is simply a "normal" developmental delay, soon to be outgrown, or something that should receive attention immediately. A rule of thumb: When not certain, get a professional opinion. Inappropriate articulation is likely to impede development of phonological awareness and cause some classroom difficulties. Inarticulate speech is worthy of attention.

Although some children have difficulty with written words solely because of fine motor skills deficits, this may be an erroneous diagnosis for other children. Children with inept spatial skills are frequently described as having poor fine motor skills, something that many educators do not view as critical, because they expect the children to outgrow "the problem" without residual bad after-effects. In fact, most children with inadequate spatial skills do not have inadequate fine motor skills even though their paper-and-pencil work suggests otherwise. They simply lack spatial analysis and organization skills, which causes them to produce disorganized, sloppy-looking paperwork.

You can test this yourself: If the child performs below the expected level on a geometric design copying task and you want to differentiate between a fine motor skills and a spatial skills problem, reduce the paper-and-pencil task to the mechanical level by eliminating all spatial decisions. In other words, draw two dots on a sheet of paper, about 2 to 3 inches apart, one above the other, and have the child draw a line between the two. Do the same with two dots positioned horizontally and two more set diagonally. Have the child connect these pairs of dots with pencil lines. If the child can do all of these, then you can put aside concerns about fine motor skills and concentrate on spatial awareness and organization.

If you need more convincing, show the child a geometric design that he or she has major difficulty copying accurately. Then, break down the copying task into separate steps and have the child follow your actions, one step at a time. For example, if the child had difficulty copying a square accurately, then you draw a single, horizontal line on a blank page (describe what you are

doing) and ask the child to “make one just like this (point to your line), here” (show the child where to draw, on the same paper, beneath your line). Once done, you draw a vertical line that is the same length as your initial horizontal line and that joins up with it, forming a right angle, and ask the child to do the same on his or her drawing. Continue this way, line by line, encouraging the child to “do what I did.” Chances are the child will produce a reasonably accurate square, thereby ruling out a motor deficit and ruling in an analysis or organization problem.

**Are computer programs available that can improve a child's spatial awareness skills?**

There are lots of programs that can help, but they have to be used properly. (I initially intended to include a list of good programs in this book, but computer programs come and go faster than a publication like this can be produced. Many programs would be off the shelves by the time this program was published.) Essentially, look for programs that are written for the age level of the child you are concerned about and that are designed to illustrate how space and/or time can be organized. (A good example from currently available programs is *Trudy's Time and Place House*, published by Edmark.) No matter how good the program is, do not expect it to teach the child all by itself. A mentor should sit by the child, calling his or her attention to the salient aspects of the activities in the program—what to look at, how it relates to the rest of the activities, and how it relates to other situations independent of the computer. In other words, there is no good reason to think the computer will teach something that cannot be taught away from the computer, but it is highly motivating to children and that is a big plus. Take advantage of computer software if you can, but do not go into debt in order to purchase a computer.