Modality Characteristics of Gifted Children

by Walter B. Barbe
and Michael N. Milone, Jr.

Teaching gifted children is like teaching a fish to swim: your chances of success are quite good. At least this is what many people think, particularly those who have never taught gifted children.

The truth of the matter is that success is not guaranteed when you teach gifted children. The potential for great achievement is present in all gifted children, but if this potential is to be realized, teaching techniques that are brought into play must be consistent with gifted children's learning styles. One of the most fundamental categories of learning styles is modality strengths.

What Are Modality Strengths?

In education, the perceptual channels are known as the modalities. The educationally relevant modalities are vision, audition, and kinesthesia. Virtually all of the academic information a student learns is acquired through one of these channels.

The perceptual channel that is most efficient is called a modality strength. Some people have a single modality strength and rely most heavily on one perceptual channel. Others have a mixed modality strength, and two or more of the perceptual channels are of comparable efficiency. When you arrange instruction to capitalize on a student's modality strength, you are engaging in modality-based instruction.

It is important to recognize that there is a difference between a modality strength and a modality preference. A modality strength can be operationally defined as the ability to perform a task in one of the major modalities (Barbe, Swassing, and Milone, 1979). A modality preference is a person's opinion regarding the modality through which he or she learns best. For some children and adults, modality strengths and preferences coincide; this is not always the case, however, even for those who are gifted.

As is true with many personal characteristics, modality strengths reflect both nature and nurture. There are certain aspects of modality that seem to be transmitted from parent to child; these may include the structure of the sense organs, the musculo-skeletal system, and cerebral organization. Other aspects of modality are the result of environmental circumstances such as nutrition, patterns of reinforcement, and parent-child interactions.

There are essentially two ways of assessing modality strengths; the most straightforward is direct observation. With training, a teacher or parent can draw conclusions about how a child learns best simply by watching that child playing or doing school work. A checklist is helpful when assessing modality strengths through observation. The greatest shortcomings of observation as a means of determining modality strengths are low reliability and validity.

Modality strengths can also be measured through a standardized assessment task; one example is the Swassing-Barbe Modality Index (Barbe and Swassing, 1979). A sequence of shapes is presented visually, auditorally, and kinesthetically. The person being tested is asked to reproduce the sequence from a pile of loose blocks. The number of correct responses in each modality is transformed into a percentage score that indicates the relative strength of each of the modalities.

Self report instruments are a good means of identifying modality preferences. The most popular of these paper-and-pencil tests is the Learning Styles Inventory (Dunn, Dunn, and Price, 1975). The LSI features questions such as "The things I remember best are the things I hear." In addition to modality preferences, the LSI provides

information on other environmental and personal factors that influence learning.

What We Know about Modality Strengths

In order to establish a frame of reference for discussing the modality characteristics of gifted children, it is first necessary to review what we know about modality in general. The following points summarize the recent research on modality; this research is treated in greater depth by Barbe and Milone (1981) and Barbe, Swassing, and Milone (1979; 1981).

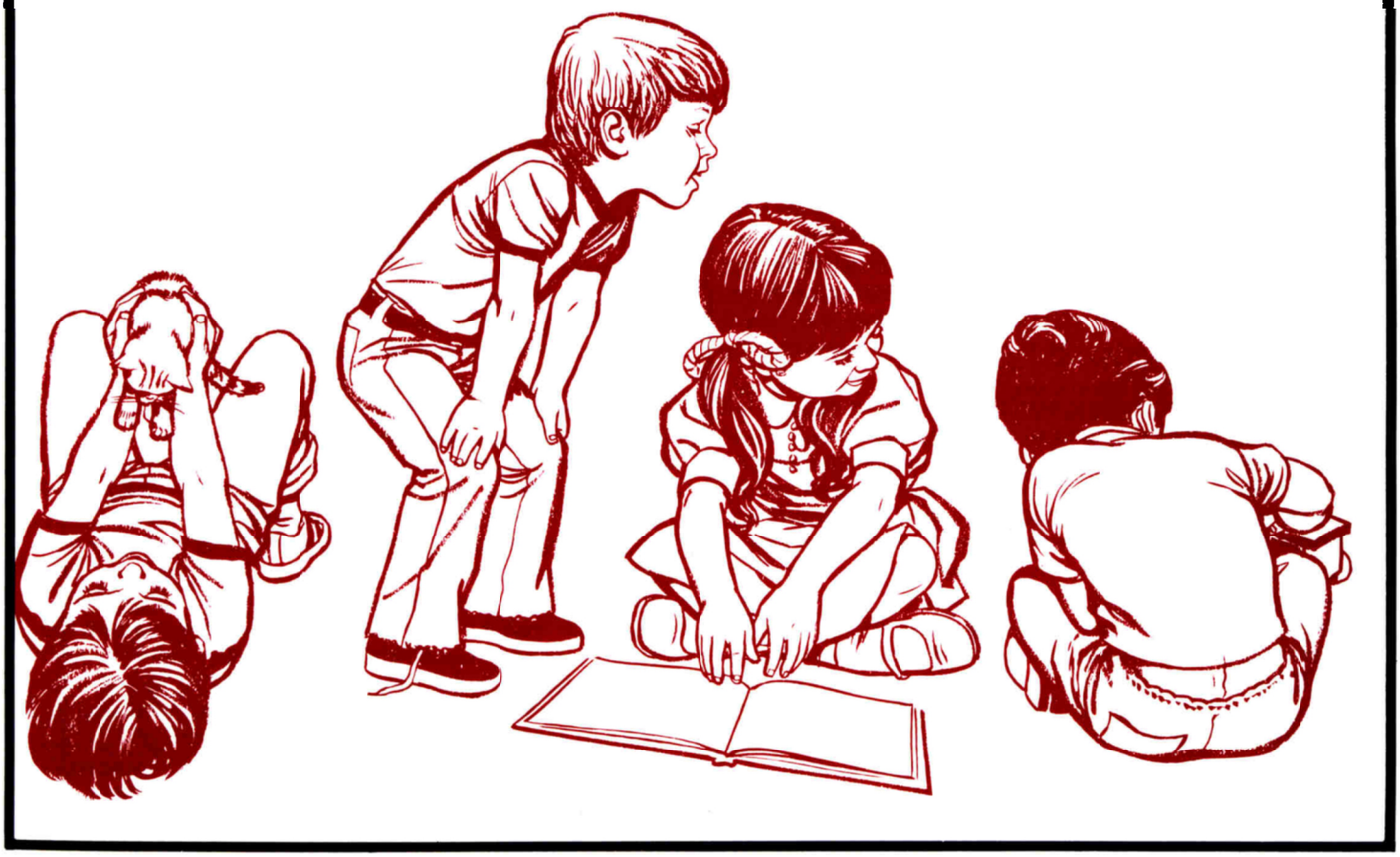
1. Students vary with respect to their modality characteristics. Approximately 30 percent of the school age population have mixed modality strengths, 30 percent are visual, 25 percent are auditory, and 15 percent are kinesthetic.
2. Modality strength is not a fixed characteristic. Infants are more kinesthetic than older children, pre-school and early primary grade children have comparatively strong auditory abilities, and older children and adults rely on vision rather than on audition and kinesthesia.
3. The modalities become more integrated with age. Whereas younger children focus on a single perceptual aspect of an event, older children and adults are more likely to consider an event in terms of several perceptual characteristics. As a person grows older, there is an increase in the ability to transfer information from one modality to another.
4. Modality strengths appear to be unrelated to gender, race, or handedness.
5. Teaching techniques reflect modality strengths. In other words, you teach as you learn best.
6. There is an interaction between student and teacher modality strengths. Although it is not always true that matching students and teachers by modality strengths brings about greater achievement, there are certain combinations of teacher and student modality strengths that are associated with high academic success.

Modality Characteristics of Gifted Children

The conclusions we have drawn regarding the modality characteristics of gifted children are based on research using the Swassing-Barbe Modality Index. Participants were students from around the country who were classified as gifted by their respective school districts.

In any discussion of gifted children, one of the first questions that arises is "Are they different from non-gifted children?" With respect to modality characteristics, the answer is yes and no. There are some noteworthy differences between the modality characteristics of gifted and non-gifted children, but these differences are not so great as to serve as the basis for classification.

An example will help to clarify this statement. Gifted children like to collect things; this conclusion has been borne out by research spanning the past half-century. Yet, you could not use "Likes collecting things" to distinguish between gifted and non-gifted children. If you



did, you would fail to identify many gifted children and would misclassify as gifted many non-gifted children. On the other hand, if you were teaching a class of children who were known to be gifted, you could be relatively certain that the students in the class would respond well to the suggestion "Let's start a collection." Knowing whether children like collecting is not much help in selecting candidates for a program for the gifted, but once students were selected using other means, this piece of information would be useful in planning instruction.

Much the same is true of modality strengths. You can not depend on modality characteristics to identify gifted children, but once they have been identified, knowing how children learn best can be a great aid to planning appropriate instruction.

Many parents and teachers are surprised to learn that gifted students, even those who have reached adolescence, may not know their own modality strength. Although gifted students are more likely than their non-gifted peers to be aware of how they learn best, this level of self-awareness is not always present.

As was mentioned previously, modality strength is not a fixed characteristic. There is a shift toward the visual in the elementary grades and an overall tendency toward modality integration as a child grows older. With gifted children, this shift seems to occur earlier (Kirchoff, 1980). While other pre-school and primary grade children are relying on audition most heavily, the gifted child is probably learning best through the visual modality. Moreover, the gifted child in the middle school is already showing a degree of modality integration that is normally associated with a much older student. You could say that the "modality age" of gifted children parallels their mental age; both greatly exceed chronological age.

Perhaps the most educationally significant modality characteristic of gifted children is that as a group, they neither prefer to learn auditorally (Griggs and Price, 1979) nor exhibit auditory modality strengths (Kirchoff, 1980). This finding also held true for a sample of musically talented adolescents, a group that by all rights should have demonstrated auditory strengths or preferences (Kreitner, 1981). Gifted children certainly can learn auditorally, but it is not the most efficient means nor the one that they prefer.

There is an important qualification to our suggestion that gifted children are not auditory learners. In the studies on which we based our conclusions, and in most instances, children were identified as being gifted by virtue of their performance on visual or kinesthetic rather than auditory tasks. Intelligence and achievement tests tap visual abilities primarily and kinesthetic abilities secondarily. Thus, the group of students we are calling gifted may by definition be visual or kinesthetic rather than auditory. Children who are gifted and who are auditory are less likely to be identified, leading to the conclusion that gifted children are not auditory.

Gifted children seem to have visual and mixed modality strengths; to a lesser extent, they are kinesthetic. The latter finding was unexpected in that kinesthetic strengths have long been thought to be a characteristic of students with learning problems. Our research has shown that many low-achieving students do indeed have kinesthetic strengths, but so do a larger than expected number of students who are above the ninety-fifth percentile on standardized achievements tests. Being a kinesthetic learner, then, may not always be an impediment to learning.

There is one other aspect of modality and the gifted that should be mentioned. The gifted child who has an especially great strength in a single modality may become overly reliant on that modality. It is the auditory modality that is most often involved, even though this modality is favored by relatively few children who have been identified as gifted.

Over-reliance on a single modality seems to develop at an early age, often within the first year or two of school. The child demonstrates precocity in a particular modality, and naturally enough, he or she is reinforced. Soon, the child forms a restricted but effective pattern of behavior that revolves around a single modality.

There are two reasons why the auditory modality is so susceptible to overdependence by gifted children. One is that auditory precociousness is noticeable, whereas visual or kinesthetic abilities that are greater than normal may go unrecognized. The second reason is that auditory behaviors are much more likely to be reinforced than visual or kinesthetic behaviors. The young child who interacts fluently with adults is treated as something special, and this attention is a very powerful reinforcer.

Implications

Children who seem to be gifted but whose standardized test scores are relatively low may be gifted auditory learners. Their modality strength is hindering their performance on paper and pencil tests, so they should be given some other means of qualifying for gifted programs. Most school districts assert that teacher recommendations and other non-standardized criteria are already a part of the selection process, but the truth of the matter is that performance on standardized tests is the most important consideration in selecting students for gifted programs. Such overdependence on paper and pencil tests diminishes the likelihood that gifted auditory learners will receive appropriate educational opportunities.

The gifted child who relies almost exclusively on a single modality should be encouraged to use the other modalities; integration of the modalities should also be fostered. There may be some tendency on the part of parents and teachers to ignore overreliance and to justify their decision by arguing that the child is doing so well that no intervention is necessary. Unfortunately, the gifted child who depends excessively on a single modality will never reach his or her potential. Moreover, as the complexity of school work becomes greater in high school and college, the chance of failure looms ever larger. Although we have no empirical evidence to support our hunch, we are guessing that the gifted child who falters academically as an adolescent or young adult may have learned to rely primarily on a single modality.

Lecturing is not the educational method of preference with gifted students. They will respond much better and learn at a more rapid rate if instruction requires seeing and doing rather than just listening. If lecturing is called for, then it should be supplemented with graphic displays, handouts, and the like. Involving more than one modality in a lesson is preferable to providing information through a single modality.

Once required content has been learned, it is a good idea to encourage self-expression through class discussions. This will help the children in the class transfer what has been learned from the stronger visual and kinesthetic modalities to the auditory modality. Even though children who are currently being identified as gifted do not favor the auditory modality, they should be given the opportunity to develop expressive and receptive verbal skills. These skills will prove valuable as the students move into adulthood, a time during which the ability to interact verbally is more important than during the school years.

Finally, make some effort to identify your own modality strengths and those of your youngsters. Observation, a checklist of a standardized test could be used to find out how you and your children learn best. Usually, you will find that most children will learn no matter how you teach. If, however, you discover that a child has not grasped a lesson as you first presented it, do not repeat the lesson in the same way. Try another approach, one that is consistent with the modality strength of the child involved. After all, if you have to tell a youngster something a thousand times, it is not he/she who is having difficulty learning.

References

Barbe, W.B. & Milone, M.N. What we know about modality strengths. *Educational Leadership*, 1981, **38**, 378-380.

Barbe, W.B. & Swassing, R.H. *The Swassing-Barbe Modality Index*. Columbus: Zaner-Bloser, 1979.

Barbe, W.B., Swassing, R.H. & Milone, M.N. *Teaching through modality strengths: concepts and practices*. Columbus: Zaner-Bloser, 1979.

Barbe, W.B., Swassing, R.H., & Milone, M.N. Teaching to modality strengths: Don't give up yet! *Academic Therapy*, 1981, **16**, 261-266.

Dunn, R., Dunn, K., & Price, G. *The Learning Styles Inventory*. Lawrence, KA: Price Systems, 1975.

Kirchoff, S. *Modality strengths of gifted students*. Doctoral dissertation, Washington State University, 1980.

Walter Barbe *is Editor-In-Chief of* Highlights for Children. **Michael N. Milone, Jr.** *is Director of Research for Zaner-Bloser, Inc. Dr. Barbe last appeared in the pages of* G/C/T *as author of "Rx for Pleasure or Pain in the Gifted Child's Family" (January/February, 1978). This article marks Dr. Milone's first appearance in* G/C/T.