Using Tactile Strategies With Students Who Are Blind and Have Severe Disabilities

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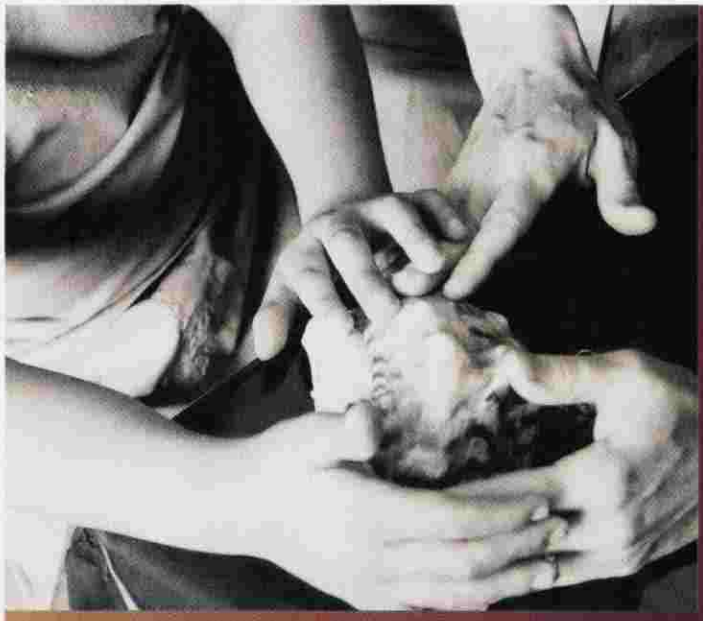

A student explores a shell with the teacher. A sighted person, whether a classmate or a teacher, can learn to interact though touch. Teacher and student make joint observations of nature.

Vision is a primary sense for learning. Teachers use pictures, photographs, and a variety of color-coded materials in their instruction. They also use demonstrations and considerable modeling, which requires the students' visual attention. Many students with severe and multiple disabilities have considerable difficulty understanding verbal information and so rely heavily on visual information (Alberto & Frederick, 2000; Hodgdon, 1995; Hughes, Pitkin, & Lorden, 1998).

But what about students who cannot perceive visual cues—or access verbal information? When students have severe and multiple disabilities, teachers must resort to alternative teaching strategies to provide effective and accessible instruction.

If these students are also blind or have limited vision, however, they need instructional materials that provide relevant tactile information. This article describes specific tactile strategies to support instruction of students who have severe and multiple disabilities and who do not learn visually.

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Getting in Touch

A teacher's instructional style certainly influences what a student learns. Teachers engage their students by providing visual and auditory information. They convey their mood through facial expressions, body language, and tone of voice. They give directions by gestures, pointing, and spoken words. If students cannot receive or understand these modes of communication, the teacher must use alternative strategies. The primary alternatives are tactile. The teacher must convey his or her instructional expectations, mood, and information through physical and direct contact with the student.

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Teaching through the sense of touch may be unfamiliar and uncomfortable for most teachers, including those with training in special education. Teachers should become aware of how they interact with the student through touch. To be most effective with tactile teaching, teachers must consider many issues:

- What impressions are conveyed to a student when he or she is touched?
- Do the teacher's hands convey different information depending on their temperature, tenseness of tone, speed of movement, and degree of pressure?
- Are teachers aware of the range of emotions that they can communicate through touch?
- Where do they touch the student (e.g., palms, back of hands, arms, legs, chest)?
- Do they touch the student's bare skin or clothing over the skin?
- How do students respond to different types of tactile input?

To be maximally effective, teachers must become aware of, interpret, monitor, and modify their tactile interactions from the student's perspective.

Tactile Modeling

Sighted students learn from demonstrations and through imitation. Students who are blind or have minimal vision need opportunities to feel the demonstrator's actions by touching the parts of the body or objects involved in the actions (Smith, 1998). For example, in a cooking class, a classmate demonstrates how to make meringue by whipping egg whites. The student who is blind can feel the peer's hand holding the bowl, the other hand grasping the electric mixer. This way, the student who is blind can "see" what his or her classmate is demonstrating. Like other tactile adaptations, the use of tactile modeling requires careful planning on the part of the teacher and extra time for the student to benefit from this instructional strategy.

Tactile Mutual Attention

Sighted students visually examine and make observations about something they are looking at together. The student with minimal or no vision should have opportunities for shared exploration with classmates through tactile mutual attention (Miles, 1999). For example, during a unit of study on masks, the student and a classmate may tactilely examine an African mask, placing their hands together as they explore the relatively smooth parts of the mask and find the leather strips, beads, and decorative feathers that border the mask. This way the student has a joint focus and shares observations with a classmate. Sighted classmates will have many creative ideas of ways to use tactile modeling and tactile mutual attention with peers who are blind and have additional disabilities (see Figure 1).

Tactile Learning and Teaching

When students with severe disabilities are unable to use their vision effectively for obtaining information, they require tactile information that is accessible to their hands or other parts of their body (see box, "Web Site Resource" for information on tactile learning from Project SALUTE). Tactile information, however, has different characteristics from visual.

Unlike vision, touch provides a fragment of the whole; the student must put together a series of tactile impressions to understand what other students are looking at. For example, fourth-grade students are studying different aspects of life in the desert. One student, who is deaf and blind and does not know American Sign Language, is feeling a large desert tortoise. One hand is near the tail, and the other hand is feeling one edge of the shell near the tortoise's head. It will take this student considerable time and effort to tactilely examine and discover the physical characteristics of a tortoise, while his classmates can see that it is a tortoise in one glance.

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Certain concepts are easier to convey tactilely than others. Abstract concepts are much more difficult to adapt tactilely than more concrete facts. For instance, it is much easier to teach about helium using balloons than it is to teach historical events. The teacher must ensure that the tactile representation is truly representative of the concept and is relevant and meaningful to the student. For example, to teach that the solid state of water is ice, the use of

Figure 1. Considerations for Interacting Through Touch

1. Select the message that you want to communicate to the student (e.g., greeting, reassurance, encouragement, praise, redirection, demonstration).
2. Decide how best to communicate that message through the type of touch (i.e., duration, pressure, movement) and where to touch the student (e.g., back of hand, shoulder, or knee).
3. Identify how you will let the student know that you are close (e.g., by saying his name) before touching him or her (e.g., on the elbow).
4. Discuss whether and how to examine an item with the student (e.g., by having two students examine an African mask).
5. Decide whether and how to use tactile modeling (e.g., by asking a classmate to show the student how to blow up a balloon).
6. Observe the student's reactions to your tactile interactions and modify the interaction accordingly.
7. Identify how you will end the interaction (e.g., let the student know that you are leaving by giving him a double pat on the shoulder).

raised (tactile) lines in waves to represent water and raised (tactile) straight lines to represent ice is not meaningful or understandable to most students with severe and multiple disabilities. In contrast, the use of water (wet, liquid) and ice (cold, solid) would clearly represent the critical aspects of the topic of study.

The educational team must decide what aspects of a lesson can be represented tactilely to make instruction most easily understood. At times, the best tactile representation may be tangential to the specific subject. For example, for a lesson on Lewis and Clark and their exploration of the West, artifacts of the Old West (e.g., pieces of clothing, fur, leather pieces, a whip, and tools) can be used to provide a tactile experience for the student with no usable vision. Such items would also benefit the entire class. Acting out the event using objects as props also adds clarity and interest to a seemingly abstract topic.

Obviously, students with different skills and abilities will develop different concepts of the topic of study. For example, whereas fifth-grade students without disabilities in geometry class learn how to find the area of a square, a student who has severe and multiple impairments, including blindness, may just be learning to sort square shapes from round ones. General and special educators need to understand such differences and still challenge students to learn what they can.

Presenting Tactile Information

You can provide visual (e.g., pictures or sign language) and auditory (e.g., speech) information to several students at once. These so called *distance senses* are quick and efficient. In contrast, tactile information requires individual physical contact and takes more time to understand. You must allow extra time for presentation of tactile information so the student has an opportunity to touch, handle, examine, and eventually synthesize and understand information (Downing & Demchak, 2002). Here are some reminders:

- Decide how to introduce an item to the student.
- The item should be accessible so the student can detect its presence and then manipulate it to determine its identity or relationship to familiar experiences.
- Touching the item to some part of the student's body (e.g., arm or side or back of hand) is less intrusive than manipulating the student's hand to take the item and therefore, such an approach is recommended (Dote-Kwan & Chen, 1999; Miles, 1999; Smith, 1998). Some students are timid about tactile exploration because they are wary and careful about handling unfamiliar or disliked materials.

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A teacher or peer may introduce a new object to the student, by holding the object, and placing the back of his or her hand under the student's hand. The student is more likely to accept the touch of a familiar hand than that of an unfamiliar object. Slowly the teacher or peer can rotate his or her hand until the student is touching the object. This way the student has physical support while deciding whether to touch and examine the object (Dote-Kwan & Chen, 1999). After the student detects the presence of the item, he or she is more likely to take the item and explore it (if physically possible).

Ideally, students will use their hands to explore; however, some students have such severe physical disabilities that they may use touch receptors in their tongue, on their cheeks, or inside of their arms. In all cases, you need to encourage the student's active participation (even if only partial) in accessing information.

Providing Effective Tactile Representation

To determine whether tactile information is truly representative of a specific concept, the representation must be tactilely salient and meaningful. Because it is natural for sighted teachers to have a visual perspective, it is difficult to make tactile adaptations that make sense tactilely. For example, tactile outlines of items (e.g., string glued to a drawing of a house) may be used to represent dif-

Web Site Resource: Project SALUTE

Project SALUTE (Successful Adaptations for Learning to Use Touch Effectively) contains information sheets related to tactile adaptations for students who are blind with severe disabilities. These strategies include the following:

- Tactile communication strategies
- Mutual tactile attention
- Tactile modeling
- Object cue
- Touch cue
- Tangible symbols
- Textured symbols

Visit Project SALUTE on the Web at http://www.projectsalute.net.

ferent concepts but may not be recognized tactilely or understood by the student. Although miniatures are convenient because of their size and are easy to handle, they are based on visual characteristics of the objects they represent. For example, a small plastic dog has no tactile characteristics in common with a real dog. Similarly, a miniature of a house, while visually recognizable, does not resemble a house when examined tactilely. A key that the student has used to open the front door of his house will form a more accurate concept of "house."

Experiment with what can be perceived tactilely by blindfolding yourself and examining the adaptation using only your sense of touch. In addition, avoid misconceptions as much as possible. For example, in a kindergarten classroom, a student brought a glass paperweight with a rose in it for show and tell. He talked about the rose as he passed it around the class. When a classmate who has no vision and limited language was allowed to hold the paperweight, he was confused when told "it's a rose." More appropriate language should be used to describe what this student is experiencing (e.g., "round," "smooth," "heavy," and "glass"). If this student is to understand the meaning of "rose," then you need to provide a real rose, so the student can perceive its shape, texture, size, and scent (see Figure 2 for other considerations).

Figure 2: Considerations for Developing Tactile Adaptions

1. **Identify the objective of the lesson or the instructional concept.**
2. **Select the materials to convey this concept.**
3. **Close your eyes and examine the material with your hands.**
4. **Take a tactile perspective, not visual, when deciding how and what to present.**
5. **If the entire concept (e.g., house) is too complicated to represent through a tactile adaptation, then select one aspect of the concept (e.g., key) for the tactile representation.**
6. **Consider the student's previous tactile experiences. What items has he or she examined?**
7. **How does the student examine materials through the sense of touch?**
8. **Decide how the item will be introduced to the student.**
9. **Identify what supports the student needs to tactilely examine the item.**
10. **Decide what language input (descriptive words) will be used to convey the student's experience of the material.**

Hyperresponsivity to Touch

Some students demonstrate strong reactions to tactile information, even though this may be the best way for them to receive information. These reactions are often referred to as *tactile defensiveness* and treated as a negative characteristic of the student. Some people have a low sensory threshold and are hyperreactive or hyperresponsive to certain sensory stimulation (Williamson & Anzalone, 2001). Tactile responsivity is simply the degree to which an individual responds to tactile stimulation. Some individuals can tolerate considerable and varied amounts of tactile input without much reaction (e.g., tactile hyporesponsivity), while others are very sensitive to certain types of tactile input (tactile hyperresponsivity). These responses vary from person to person. Some people can wear certain fabrics next to their skin while others cannot.

Teachers must be aware of and respect these individual differences. Teachers should not take students' hands and physically make them touch materials if they are not willing to do so (Smith, 1998). If students are forced to have aversive tactile experiences, they are less likely to explore tactilely. The term *tactile defensiveness* has a negative connotation that may interfere with effective intervention. If the student has a sensory modulation problem that results in hyperresponsiveness, then the educational team should include an occupational therapist. Creative ways to bypass this problem and assist the student to handle tactile information are needed.

A Team Effort

Making appropriate tactile accommodations (instructional strategies or materials) cannot be left to one member of the team (i.e., the teacher certified in the area of visual impairment). A team effort is required, with different team members contributing their skills, knowledge, experiences, and ideas (Downing, 2002; Silberman, Sacks, & Wolfe, 1998). A special educator specifically trained in the area of visual impairments and blindness can be helpful with teaching ideas and tactile resources. Depending on this teacher's professional training and experiences, however, he or she may be unfamiliar with the types of accommodations a particular student may need. The student who is blind, has spoken language, and reads braille has very different learning needs from those of a student who does not speak, does not read braille, and has limited receptive language.

Relying on one specialist to meet the tactile needs of a student who is blind with additional severe disabilities should be avoided. The ideas of all members of the team are needed, including family members and classmates who do not have disabilities (Downing, 2002). This way tactile adaptations and strategies are more likely to be used at home and school and with peers.

Team members should consider how the student perceives information through touch, the student's best physical position, the student's ability to move different parts of his body, and past experiences with tactile information. Family members can provide insight on the student's tactile experi-

ences and preferences. Occupational therapists can provide valuable information on the student's use of his hands, responsivity to tactile items, and strategies to decrease hyperresponsivity. Physical therapists can help with positioning considerations and adaptive equipment that support tactile exploration. In collaboration with the general educator, the teacher certified in visual impairments can provide ideas for making tactile adaptations to instructional materials. Classmates can be asked for their ideas on how to use tactile modeling or to gather objects and tactile materials that can make a lesson more meaningful.

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Final Thoughts

Meeting the learning needs of students who have severe disabilities and who do not have clear access to visual information is a significant instructional challenge. Teaching through touch is unfamiliar and perhaps awkward for most sighted people, but learning though touch is essential for students who are blind or have minimal vision. Effective use of tactile strategies must consider the individual student's needs and abilities, learning environment, and task. These strategies can best support students' learning when there is a concerted effort on the part of the educational team, additional time for the presentation of tactile information, and systematic evaluation of adaptations.

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