

Self-Recording for Students with Severe and Multiple Handicaps

Kathleen A. Liberty and Mary Anne Paeth

Precision Teaching involves collecting frequency data to make decisions about instruction and intervention. Because frequency data have point-to-point correspondence with the behaviors they represent, there is a need for devices and procedures to collect these data. Both regular class students and those with mild handicaps collect data on their own performance, and teachers work with them to make decisions. Usually, students use paper and pencil to record their performance, but mechanical and electronic devices such as calculators also can be used. Students with severe and multiple handicaps can also learn to collect the data needed for decision making, using adapted mechanical counting devices to record their own behavior and skills.

Purpose

Self-recording has many advantages for both learners and teachers. A student who has learned this skill is gaining independence and has learned a useful self-management skill—one that can be used with many different target behaviors. In fact, self-recording often acts as an intervention to improve the behavior or skill itself. For the teacher, it can free time for other activities that was previously spent collecting data on student performance. It also provides a way to collect information about the performance of private behaviors such as bathing, and it can be collected discreetly in public places such as grocery stores and movie theaters, where an outside observer would be intrusive, expensive, or distracting for the student.

The performance objective for self-recording is that the learner will count the target skill or behavior reliably. Reliability is an estimate of

the accuracy of the self-recording. It is determined by dividing the number of times the target skill or behavior actually occurred during observation probes by the number shown on the learner's self-record at the end of the observation period. Around 85% reliability is usually acceptable in research studies. The reliability level selected becomes the performance criterion for the objective.

Materials

The only material needed is a device for recording the skill or behavior; the most common device is a paper and pencil. However, students with severe and multiple handicaps may not be able to work with paper and pencil. For these students, alternative recording methods need to be selected.

The first step is to determine what type of movement the student is able to make. The nature of the movement will determine the type of recording device and modifications needed. To learn to self-record, the student should have voluntary control over one particular response such as an arm movement, a leg movement, eye movement, or hand and finger movements. This movement will be used to actuate the recording device.

The next step is to shop for a suitable device, keeping the types of movements the learner can make in mind. Many different types of devices that can be used for self-recording are commercially available in sporting goods stores and departments, variety stores, and grocery stores. Devices can generally be purchased for under \$10.

Many other items can be adapted, for example, a calculator (press the + button); a tape recorder (record the number of minutes the tape was on or use a digital tape counter); a toy abacus; a stopwatch; a digital timer (start and stop to accumulate the total time); and a jar mounted on the edge of a table (slide a block into the jar).

After surveying the student's movement possibilities and selecting some recording devices, the teacher should work with the student to see whether he or she can operate any of the devices selected. Each device will require slightly different movements to operate while most counters require the students to use fingers; some, such as the Pro Count™ and the Aristo Tally™, can be actuated with other parts of the body such as elbows, palms, and toes.

If a device cannot be operated by the student, it may be possible to modify it. All of the devices shown can be modified for students with physical disabilities or difficulties in motor control. For example, the size and shape of the button activator can be changed by gluing wood, fabric, or plastic objects to the button or extending its length with a wooden dowel. The position of the device can be changed, and it can be mounted on a piece of wood or plastic and affixed to a table or wheelchair tray, so that a particular movement will activate it and it is not necessary to hold it in the hand. Materials can also be handmade. For example, a wrist abacus can be made with fewer and larger beads.

Modifications of a mechanical device for four students with cerebral palsy were made. The actuating buttons were replaced by pieces of wood using machine screws and bolts. Several trial-and-error sessions were needed in order to arrive at an arrangement that the students could use. Most commercial counters are also of simple construction, and it is easy to dismantle them for modification.

If a student does not have good control of the device, it will probably improve during instruction. For some students, the opportunity to learn to self-record is motivation to develop or improve existing movements, perhaps with the assistance of physical prompts and shaping during the first trials.

The next step is to position the device. Placement depends on where and how the target skill will occur as well as on the type of counter used and the method of actuation. If the target skill consists of a chain of responses such as completing a puzzle, assembling a bicycle brake, or making a peanut butter sandwich, the counter can be placed next to the final item in the chain. If the target skill will occur on a table, the counter can be placed on the table or on a workbench next to the materials used in performing the skill. If the target skill will be performed in many different locations, the counter can be positioned on the student's wrist, belt, wheelchair tray, or walker.

It is important for the student to be able to see and hear the counter as well as actuate it. When the student actuates it, the numbers change in the visual display and the counter makes an audible click. The movement and the sound appear to be natural reinforcers for self-recording, so it is important to make sure that the counter can be seen and heard by the student in the position in which it is set. Masking tape can be used to cover distracting words, labels, or display elements that are not required.

Finally, the different target skills or behaviors that the student will be self-recording must be taken into consideration. To improve discrimination, distinctly different devices should be used for each self-recording program.

Directions

Most commonly, self-recording is taught with the same procedures that are used for teaching other skills to students with severe handicaps or multiple disabilities. Self-recording can be taught at the same time a skill is learned, or it can be taught after the skill has been acquired.

In some cases, however, instruction in self-recording requires special consideration, it may interfere with instruction or performance of the target skill or behavior. The student may confuse verbal prompts or directions to self-

record (e.g., "Push it") with directions to complete the target skill (e.g., "Push it in") or to refrain from the target behavior (e.g., "Don't push"). If this is a problem, use a nonverbal prompting procedure such as silently pointing to the device.

A second consideration is that the reinforcement for self-recording may be confused with reinforcement for the target behavior. For example, the learner could perform incorrectly and then record accurately. Praise for self-recording might reinforce the incorrect performance of the target skill.

Instead of providing any additional overt positive reinforcement for self-recording, use the reinforcers for the target behavior to also reinforce self-recording. In this case, reinforcement for the target behavior is delayed until the learner successfully self-records. This nonverbal procedure works well with the pointing prompt.

Self-recording a desired skill can actually increase it, while self-recording a deceleration target behavior can decrease it. Since the mechanical device associated with an acceleration or deceleration can itself become reinforcing or punishing, the teacher should be careful when changing to a different device or removing a device.

Evaluating Success

Student progress in learning to self-record can be evaluated using Precision Teaching practices. The teacher charts the number recorded by the learner, using the length of time the student recorded as the record floor/time base for the frequency calculation. To check student reliability, the number of items or pieces completed is compared with the student's record. If the skill or behavior does not produce a concrete product, the teacher continues to collect the data until satisfied with the student's reliability. Reliability problems can be improved by providing verbal corrections such as "Push once" for the student who pushes several times, by changing the position of the device or changing devices. Mechanical problems can affect the devices, so 100% reliability is neither possible nor necessary for successful decision making.

At Work in the Classroom

Once a device has been selected and adapted, teaching self-recording can add as little as 2 seconds to the target behavior, but it can have big payoffs. Self-recorders benefit not only from changes in their target behaviors, but from the increased independence as well. Students with counters are also treated differently by their peers, adults, and others in the community. In our practice, we found that students with counters were asked questions more frequently, with more complicated content, and with more expectation of a response than when the counters were absent. It is likely that they were perceived to be more competent simply because they had a complicated-looking device attached to their wheelchairs.

Students with severe and profound mental retardation can learn to self-record even though they do not count objects or count by rote, recognize numbers, or understand the concepts of *more* or *less*. The cognitive skills of counting, recognizing numerals, or matching numbers are not a prerequisite to learning to self-record. Students with severe and multiple handicaps have learned to reliably record their own skills and behavior, including answering questions, pointing to pictures, completing work assemblies, making noises, preparing sack lunches, talking to themselves, and others.

References

- Alberto, P., & Sharpton, W. (1987). Prompting strategies that promote student self-management. *TEACHING Exceptional Children, 19*(4), 54-73.
- Aristo™ Hand Tally Counter (General Controls, Glendale, CA), actuated by downward thumb or finger pressure.
- Hughes, C., Ruhl, K., & Peterson, S. (1988). Teaching self-management skills. *TEACHING Exceptional Children, 20*(2), 70-72.
- Pro Count™ (Pro Golf of America, Inc.), actuated by sideways pressure.

Schloss, P. (1987). Self-management strategies for adolescents entering the work force. *TEACHING Exceptional Children*, 19(4), 39-43.

Kathleen A. Liberty (*CEC Chapter #318*) is *Research Associate Professor, College of Education, University of Washington, Seattle.*
Mary Anne Paeth is *teacher, Central School District, Monmouth, OR.*