Behavioral Self-Control Strategies for Young Children

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Abstract
In this paper, self-control strategies are conceptualized as existing on two intersecting continuums of more or less individual control and increasing complexity depending on individual need. Behavioral self-control strategies for young children require external supports to assist children in learning the skills necessary to practice and implement the strategy. Therefore, self-control strategies for young children will tend to be more complex with increased external supports to encourage behavioral change. The component parts of behavioral self-control strategies are described and illustrated through examples.

Key word descriptors: Self-management, Self-monitoring, Self-control, Self-regulation, Behavioral intervention.

Self-control strategies for behavioral change have been applied in a variety of settings with a broad spectrum of individuals presenting a range of abilities and needs. The literature on behavioral self-control reflects this diversity of application ranging from typically developing children to those diagnosed with mild to severe and profound developmental disabilities (Barry & Messer, 2003; Barry & Santarelli, 2000; Barry & Singer, 2001; Hinshaw & Melnick, 1992; Reid, 1996; Shaprio, DuPaul, & Bradley-Klug, 1998; Smith & Sugai, 2000). The purpose of this article is to a) define behavioral self-control strategies, b) define the possible component parts of such strategies, and c) provide illustrations of how the components of behavioral self-control strategies can be implemented in practice with young children as an early intensive behavioral intervention.

Definition of behavioral self-control

In its simplest form, behavioral self-control consists of at least two behavioral responses connected by a functional relationship in that one response controls the other (Cooper, Heron, & Heward, 1997). There must be a) the target behavior that the child, or those around the child, identifies to change and b) the self-control behavior that is used to change the target behavior (Belfiore & Hornyak, 1998; Cooper, et al., 1997). In operant terms, there must be a controlled and a controlling behavioral response. Examples of behavioral self-control in everyday life are numerous. For instance, we make grocery lists (controlling behavior) that influence what we buy at the store (controlled or target behavior); we set alarm clocks (controlling behavior) that influence the time we wake up (controlled or target behavior); we write appointments down on a calendar (controlling behavior) that influence our rate of attendance at appointments (controlled or target behavior).

As an individual’s needs increase, the behavioral self-control strategies necessary to elicit change may become more complex. Applying behavioral self-control strategies with very young children or children with special needs will likely require extensive external support. Behavioral self-control strategies may include a) operational definitions of controlling and controlled behaviors which may entail detailed task analyses of target behaviors or more complex behavioral goals including chains of behavior; b) data recording using specific prompts for both monitoring and recording data that may include reliability measures; c) skill acquisition through instruction and practice in empirically and theoretically supported areas of deficit or need; d) contingency management of behavior using consequences (positive and negative reinforcement,
punishment, and response costs) for both performing the target behavior as well as accurate recording and monitoring; e) evaluation of data collected to monitor acquisition of behavioral skills and attainment of behavioral goals.

Behavioral self-control strategies can be conceptualized as existing on two intersecting continuums ranging in both complexity of intervention and individual control depending on the needs of the targeted individual (Mithaug & Mithaug, 2003; Shapiro, et al., 1998). Figure 1 illustrates these two continuums. Conceptualizing behavioral self-control strategies as varying on these two concepts is helpful in determining the appropriate application of component parts for a given individual and the level of support needed to elicit behavioral change.

In the most basic form, behavioral self-control strategies are implemented entirely by the individual regardless of complexity. For older and typically developing individuals, behavioral self-control strategies may be applied independently to their own behavior without additional external supports. Examples include dieting, exercise programs, or even study schedules for conscientious students. In some instances, however, self-control must be supplemented with external supports to assist individuals in being as independent as possible given their abilities. Particularly for young children and atypically developing individuals, external support is necessary to elicit behavioral change. In these cases, parents, teachers, individuals in the community or behavior analysts are given control over specific aspects of the behavioral self-control strategy to varying degrees. For instance, most young children require external support when learning and completing personal hygiene tasks such as brushing teeth or dressing independently. The external support that parents provide likely includes modeling skills for the child to watch, encouraging the child to practice, and correcting mistakes while encouraging progress. As children learn how to perform skills and when and where to perform them, they learn to initiate these skills; thus, controlling their own behavior in appropriate contexts.
Component parts of behavioral self-control strategies

*Operational definitions.* Fundamentally, all behavioral self-control strategies include operational definitions of the targeted behaviors. In practice, the specificity and formality of such definitions may vary. In addition, depending on the ability and age of the individuals targeted for change, they may or may not be included in creating the definition of these behaviors. Ideally, the child targeted for change will be involved to the greatest extent possible in creating the operational definition of the behavior. Regardless of the influence the individual has over the definition, it is crucial that the individual be able to discriminate between when a defined behavior is occurring and when it is not. Discrimination training may be needed to teach the child to recognize and self-monitor the behavior. (For a more detailed discussion, see Martella, Nelson, & Marchand-Martella, 2003).

A true operational definition will include a specific description of the behavior and define a means of measuring that behavior such as rate, duration, inter-response time, latency, percent of whole intervals, percent of partial intervals, momentary time sampling, etc (Kennedy, 2004). Indeed, sometimes the most difficult aspect of behavior change is identifying the behavior and reducing it to a precise, observable, and measurable occurrence. Operational definitions are important for specifying all behaviors that are targeted for change including those that we wish to decrease, increase, and those that need to be developed as replacement behaviors for less appropriate ones. A replacement behavior is typically one that is more desirable than the behavior targeted for reduction, but serves the same function. Part of the self-control strategy would include plans to increase the replacement behavior while decreasing the less appropriate behavior.

For instance, consider a child who tantrums in the evening. After a functional analysis of the behavior, it is determined that the child tantrums to avoid going to bed in his/her own room. As a consequence to the tantrum, the parents allow the child to sleep with them in their room. In this situation, behaviors that need to be operationally defined might include a.) tantrums, b.) appropriate requests for time with parents, c.) sleeping with parents, and d.) sleeping alone in the child’s own room.

In this instance, tantrums might be operationally defined as rate of occurrences of any single instance, regardless of duration, in which the child lays on the floor while kicking, flailing arms, and screaming. A replacement behavior might be appropriate communication to request time with the parents at bedtime, such as reading a book together or some other appropriate bedtime activity. Appropriate communication could be defined as rate of occurrences in which the child verbalizes a request to a parent in which the child is asking the parent to join them in an appropriate night time activity without screaming and while standing, laying down, or sitting appropriately for the given activity. Night time activities could be defined further by brainstorming activity options with the child and creating a menu of possible activities they could request. Notice that the operational definitions include both a description of the behaviors and a means of measuring those behaviors.

In this example it is likely that the parents would like to see the frequency of tantrums and number of nights the child sleeps with them decrease. Sleeping with parents could be
operationally defined as the number of nights in which the child spends any amount of time laying down in the parent’s bed. An obvious replacement behavior would be sleeping alone in the child’s own room which could be defined as the number of evenings in which the child falls asleep in the child’s own room and remains in the child’s bed until at least 6:00 am. Again, notice that each operational definition includes a description of what the behavior looks like when observed as well as a way to consistently and accurately measure it.

**Data recording.** Data recording requires individuals to be able to self-monitor their behavior by identifying the target behavior(s) as they occur and recording their occurrence, or lack there of, in a predefined way (see operational definitions above). Data recording can become quite elaborate with timed prompts and structured data collection sheets, graphs, or technology to assist in the process. When applying self-control strategies with young children, data recording will likely be completed by an external support person as well who can also identify the target behaviors as they occur and record their occurrence to establish reliability.

Continuing with the example of bedtime tantrums, data or information that would be consistently recorded might include the frequency of tantrums in a given period of time; frequency of nights the child sleeps in his/her own room versus their parent’s room; and rate of appropriate requests for bedtime attention. Additional data for the tantrum behavior such as duration or magnitude may also be useful in designing and monitoring appropriate interventions. A proactive strategy might include establishing a bedtime routine and asking the child to record their success with the routine.

When children are involved in self-monitoring and collection of data, reliability checks are often included as a means to teach and monitor accurate data recording. Reliability of data recording can be established by asking an additional person to record behavioral data, based on the operational definitions, independently of the target individual but during the same time intervals. After data are collected, the two data recording sheets can be compared to calculate a percent of agreement between the individual’s data and that of the independent recorder. If an additional observer is not available, videotapes can be used to check reliability at a later time.

In the case of the child with bedtime tantrums, it is unlikely that the child will be able to monitor the frequency, duration, or magnitude of the inappropriate behavior without a support strategy to assist them. An example support strategy might be a checklist or chart indicating an appropriate replacement bedtime routine for recording appropriate behavior within a specific time period. Depending on individual need, a child might benefit from a simple nightly routine calendar on which they can record if they completed each step of the routine successfully (see figure 2). In this example, children would only mark the calendar if they followed the step of the routine without exhibiting a tantrum. The child could also be prompted to mark the chart in the morning after waking to indicate if the child woke up in his/her own bed.

See figure 2, next page!
### Night, Night Routine Follower!

<table>
<thead>
<tr>
<th></th>
<th>Night 1</th>
<th>Night 2</th>
<th>Night 3</th>
<th>Night 4</th>
<th>Night 5</th>
<th>Night 6</th>
<th>Night 7</th>
</tr>
</thead>
<tbody>
<tr>
<td>I put on my pajamas</td>
<td>😊</td>
<td>😊</td>
<td>😊</td>
<td>😊</td>
<td>😊</td>
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<tr>
<td>I ate only one bedtime snack</td>
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<td>😊</td>
<td>😊</td>
<td>😊</td>
<td>😊</td>
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<tr>
<td>I brushed my teeth after my snack</td>
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<td>😊</td>
<td>😊</td>
<td>😊</td>
<td>😊</td>
<td>😊</td>
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<tr>
<td>I asked my mom or dad to read with me</td>
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<td>😊</td>
<td>😊</td>
<td>😊</td>
<td>😊</td>
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</tr>
<tr>
<td>I was in my bed when the lights were turned off.</td>
<td>😊</td>
<td>😊</td>
<td>😊</td>
<td>😊</td>
<td>😊</td>
<td>😊</td>
<td>😊</td>
</tr>
<tr>
<td>I stayed in my bed all night and woke up in my bed this morning!</td>
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</table>

If my happy faces match my parent’s, then I know I marked my chart correctly.

I get an extra reward when my happy faces match my parent's.

**Figure 2.** Example of a weekly data recording chart for a regular bedtime routine.

Other children may require a more intensive intervention that requires them to monitor and record their behavior every few minutes. Parents might employ an alarm clock on a fixed or variable time interval to prompt their child to collect data during self-monitoring. For this example, when the alarm clock rings, the child is to stop and note if he/she was following any of the steps in the bedtime routine during the last time interval without a tantrum and mark the data on the chart accordingly (see figure 3). Limits would need to be set so that the child knows to complete each item listed in the routine before the specified bedtime.

It is important that the child knows how to complete the chart and can easily perform the replacement behaviors; therefore, initially, frequent reinforcement contingent on the child attempting and completing the bedtime behaviors and recording the data will likely be necessary (see skill acquisition below). Later, the child’s data recording can be compared to an adult’s recording with additional reinforcement provided to the child if the recordings are generally consistent. Notice at the bottom of figures 2 and 3, that matching records are rewarded in an effort to increase reliability in child accuracy in data recording.

See figure 3, next page!
Night, Night Routine Follower!

I will do each step in my routine before 7:30pm. I will put a happy face on my chart only if I was doing one of these steps without being upset during the last five minutes:
1. I am wearing my pajamas
2. I am eating my one snack for tonight
3. I am brushing my teeth after my snack
4. I am reading with an adult
5. I am in bed when the lights are turned off

<table>
<thead>
<tr>
<th>Night</th>
<th>7:00pm</th>
<th>7:05pm</th>
<th>7:10pm</th>
<th>7:15pm</th>
<th>7:20pm</th>
<th>7:25pm</th>
<th>7:30pm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Night 1</td>
<td>😊</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>7:30pm I am in bed at 7:30pm!</td>
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<tr>
<td>Night 2</td>
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<td>😊</td>
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<td>Night 3</td>
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<td>Night 4</td>
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<tr>
<td>Night 5</td>
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<td>Night 6</td>
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<tr>
<td>Night 7</td>
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</tr>
</tbody>
</table>

Morning I stayed in bed all night!

If my happy faces match my parent’s, then I know I marked my chart correctly. I get an extra reward when my happy faces match my parent’s.

*Figure 3.* Example of a nightly data recording chart for an intensive behavioral intervention with a bedtime routine.

When constructing data collection sheets, it is important to focus on the appropriate behaviors. For instance, rather than asking children to record a mark on the chart when they do tantrum, it is best to ask them to record when they do not tantrum or are behaving appropriately for the entire time period whether nightly or every few minutes. Also, instead of asking children to record the nights that they slept in their parents bed, focus the child’s attention on the appropriate replacement behaviors by requesting that a happy face be placed on the chart for nights when the child went to sleep and remained in his/her own bed all night.

When working with young children, data recording will likely be a skill that needs to be taught along with appropriate replacement behaviors and other skills related to implementing the strategy. When teaching children how to record their behavior accurately, reinforcement is
typically provided to help teach self-reflection and encourage accurate recording. It should be noted that while a child is learning to record the behavior accurately, it is possible that the child could engage in inappropriate behavior but monitor and record the behavior correctly and therefore earn reinforcement for accurately recording the behavior.

**Skill acquisition.** Learning new skills is an important component when implementing behavioral self-control strategies with young children and those with special needs. Skill acquisition may include skills in identifying and defining behaviors to change as well as skills needed to implement the behavioral strategy that may include self-monitoring, self-recording of data, and self-evaluation in addition to any targeted behaviors that need to be acquired or increased. For young children, skill acquisition may be as intensive as daily instruction with modeling of behaviors, opportunities for practice, corrective feedback from external supports, and reinforcement.

Modeling of skills can be accomplished in a variety of ways. Often times, adults who are implementing the behavioral self-control strategy will model the appropriate behaviors themselves in context and ask the child targeted for change to watch them. Other options to model skills for children is to enlist the help of peers or siblings to model skills, or photograph or video tape the targeted child exhibiting the desired behavioral skill (Apple, Billingsley, & Schwartz, 2005). Modeling works best when applied in the contexts where the child will be expected to exhibit those skills.

As with modeling, providing the child opportunities to practice skills in the appropriate context is important. Opportunities for practice should be created for the child immediately after they have watched a model exhibit the behavior. Consider a child who needs to learn how to request food appropriately at the dinner table. After watching a sibling appropriately model the requesting behavior, an opportunity for practice can be created by providing the target child with a plate and utensils but waiting to serve the child any food, thereby creating a context in which the child has to attempt to request food in order to receive any. Or, consider children who need to learn how to dress themselves but struggle with one part of the process such as getting their arms in the sleeves. Using a mirror when practicing might help these children see their own body and their behavior in comparison to a model that can help children observe the difference between what they are doing and what the model is doing.

Corrective feedback should be applied immediately and consistently as the child practices the behavioral skills. Corrective feedback may involve a) asking the child to stop what they are doing, b) asking the child to watch what the model is doing instead, c) providing additional and increasing prompts as needed, and d) creating more opportunities for practice. This process of modeling, practicing, and corrective feedback becomes cyclical in which teaching and learning are dynamic. Review and continued practice in appropriate contexts is important as children learn and develop new abilities.

Reinforcement during skill acquisition can be as simple as verbal encouragement or a smile when successive approximations of a new skill are exhibited. Consequences should be tailored to individual need and to what is reasonable and appropriate given the context and supports available. Reinforcement will be addressed in more detail below in the discussion of
contingency management. In the context of skill acquisition however, it is likely to be important to provide reinforcement to young children as they learn and develop new skill repertoires.

**Contingency management.** Contingency management of behavior using consequences (positive and negative reinforcement, punishment, and response costs) for both performing the target behaviors as well as accurate self-monitoring, self-recording, and self-evaluation is commonly included in behavioral self-control strategies. Ideally, behavioral self-control strategies would include self-reinforcement in which the individual administers reinforcement for achieving behavioral goals. For young children, external supports may provide additional reinforcement as a consequence for accurate self-monitoring, recording, or evaluation. Further support can be provided by having adults, peers, or siblings administer positive consequences using differential reinforcement for achieving behavioral goals (Drasgow, Halle, & Ostrosky, 1998). It is recommended that children targeted for change have choices in the strategies used and the consequences they receive (Carter, 2001).

Contingency management can vary greatly in application. A consequence can be very simple social reinforcement that naturally occurs in the given context such as verbal praise, a head nod, or a smile. Consequences can also be made quite complicated by involving more than one person at a time such as whole group contingencies and/or by adding artificial reinforcement such as level systems, token economies, or individual artificial rewards like candy, toys, extra recess, or computer time.

When developing a contingency management plan, it is important to identify consequences that are effective in eliciting behavioral change. Preference assessments can help identify possible consequences that might be reinforcing. It is important to remember that we don’t know if a consequence is reinforcing until we assess the effect it has on the behavior of the individual targeted for change. A consequence might be a preference of the individual when given a choice of options, but may not be effective in motivating behavioral change. Including the individual targeted for change, to the greatest extent possible, in the choice of possible consequences increases the likelihood of identifying effective consequences.

**Evaluation.** Evaluation of recorded data allows for self-reflection on progress toward behavioral goals. Similar to data recording, it is important to teach the skills necessary for self-reflection or self-evaluation. If a child is successful in reaching a behavioral goal, the child would reinforce themselves for doing so and continue the process. Conversely, if the child is unsuccessful in meeting or adequately progressing towards a behavioral goal, ideally, the child would problem solve by adjusting consequences, changing the environment, or acquiring additional behavioral skills where appropriate. When implementing behavioral self-control strategies with young children, external prompting and direction will be needed. Children will likely need to learn, through skill acquisition, to evaluate their progress based on the data they have collected by comparing it to a predetermined criterion or goal (Zirpoli & Melloy, 2001).

In the example of a bedtime routine, a child could be given successive goals to attain. Successive goals should be set at reasonable levels of difficulty so that children are able to attain them. If a goal is established and a child cannot reach that goal, then the goal needs to be reevaluated and the task may need to be broken down into smaller component parts so that
success towards the goal is possible. For instance, in the bedtime routine example, parents might begin with a goal of one successful night. As the child is able to attain that goal, the criterion can be increased to three nights and then five nights as the child’s abilities increase. In the process of self-evaluation, the child could be prompted to not only mark the calendar but also reflect on the amount of progress toward the goal until the child is able to evaluate progress independently. For instance, using Figure 2 as an example, the child had remained in bed for two consecutive nights. As the child continues to work towards a successive goal of three consecutive nights, parents could prompt the child to notice the success so far and point out what the child needs to continue to do to reach the behavioral goal. Again, reinforcement of attaining behavioral goals as well as accurately evaluating their attainment of goals will likely be needed.

Although young children are able to record and evaluate their progress toward a behavioral goal, in practice, some adults may be skeptical of young children’s ability to accurately record and evaluate their behavior. The literature on behavioral self-control strategies offers many examples of very young children accurately recording and evaluating their behavior (McCabe, Hernandez, Lara, & Brooks-Gunn, 2000; McLaughlin, 1983). For instance, Sainato, Goldstein, & Strain (1992) taught preschool children to use a self-evaluation procedure of social interaction strategies they used with their classmates with autism. These young children were successful not only in evaluating their use of strategies but also in increasing their social interactions with their classmates. McCabe, et al., (2000) also demonstrated the ability of preschool children to self-evaluate their own behavior in both home and school settings the resulted in behavioral change.

Generalization and maintenance. It is important to note that as external support is increased based on individual need, the benefits in terms of generalization and maintenance may decrease. Measures can be taken to increase the likelihood that skills will generalize to novel settings and maintain over time. Procedures for fading of supports while maintaining behavioral change and generalization of skills should be considered.

Generalization of behavioral skills is an important component to any behavioral intervention. In practice, application of behavioral self-control interventions should be implemented across multiple settings in which the child might be expected to implement behavioral self-control. Specific skill instruction in behavioral self-control might be needed in each new setting depending on individual ability.

Children with moderate disabilities generally require greater repetition and more specific skill instruction across settings and with multiple examples than children with mild disabilities or typically developing children. For example, when teaching a child with moderate to severe disabilities to use a telephone, the child will likely need to learn the necessary skills on a home telephone, on a cellular telephone, and on a pay telephone as it is unlikely that the child will be able to generalize the skills that they have learned on one type of phone successfully with novel types of phones.

Maintenance of effects should be addressed using caution with careful fading procedures developed based on individual needs. Decisions to fade procedures and the rate of fading should be data driven. Generally, fading is achieved by gradually increasing expectations necessary for reinforcement, utilizing a variable schedule with increasing time intervals, and/or reducing the
number of prompts or cues given to signal self-monitoring (Wheeler & Richey, 2005). Continued
data collection by those around the child targeted for change can be helpful in determining if
procedures are being withdrawn too quickly. Once supports are successfully faded, data
collection can be dropped completely or occasional probes can be used to assess maintenance over
longer periods of time by collecting data at continuously increasing time intervals (Bear, 2005).

Summary

The purpose of this article is to define behavioral self-control strategies and the
component parts of these strategies for use with young children. Collectively, the procedural
components described and illustrated here can be used to create effective behavioral self-control interventions. Although extensive external supports are needed when implementing self-control strategies with children with disabilities and young children, these strategies enable children to acquire the ability to control their own behavior with increased independence.

The strategies in this paper are outlined and discussed in basic terms and with sufficient
detail to encourage implementation by parents, teachers, and behavior consultants in a variety of
settings. By following the step-by-step process, children can be taught appropriate behaviors as
well as the skills necessary to help them monitor and evaluate their progress toward behavioral
goals, often within a short period of time. When creating a behavioral self-control strategy for a
specific child, it is important to cater to the individual abilities and needs of that child. Ideally,
behavioral self-control interventions should provide enough support for the child to be successful without overwhelming the child with unnecessary external interventions that the child may learn to depend on. Success and need for supports should be continuously evaluated to be sure that an appropriate level of support is provided so that the child will reach behavioral goals. Through positive interactions of this kind, children are provided the skills they need to manage their own behaviors and thus are better able to function successfully at home, at school, and within the community.

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