Teaching Positive Work Behavior With Literacy-Based Behavioral Interventions

Preparing people with disabilities for employment is an important task. Many individuals have difficulty learning and performing employment skills without support or guidance (Brady & Rosenberg, 2002). This article describes how literacy-based behavioral interventions (LBBIs), instructional interventions that use print or pictures as an instructional medium, can help teachers, job coaches, and employers who work with individuals with disabilities encourage positive work behaviors. One popular example of an LBBI is a Social Story (Gray, 2000). Social stories are short individually written stories that describe a situation, skill, or concept to help improve understanding. Historically, educators used Social Stories as a behavior management technique, typically for children with autism (Gray & Garand, 1993). Although literature supports the use of these stories for children with autism, very few studies examine how literacy-based interventions may be useful for individuals with other types of disabilities (Moore, 2004) or how they might be useful as an intervention in vocational or employment settings (see box, "What Does the Literature Say?").

Why a New Term?

The term *literacy-based behavioral intervention,* or LBBI, encompasses a wide variety of literacy interventions, including Social Stories (Gray, 2000), as well as several other positive interventions that provide guidance and self-instruction within a literacy context (Bucholz, Brady, Duffy, Scott, & Kontosh, in press). The term LBBI includes the array of intervention formats that present opportunities for instruction and rehearsal through print or pictures and incorporates instruction with full or partial sentences, written reminders, stories, photographs, drawings, comic-strip illustrations, or other media. Similar to the Social Stories that Gray describes, LBBIs are individually written short stories that describe a specific situation, relevant social cues, and common responses to that situation. Gray prescribes definitive guidelines for specific sentence types and story formulas. For example, this ratio calls for a mix of zero to one directive sentences that describe specific options to the learner for every two to five sentences that provide more descriptive, perspective, and affirmative feedback. However, many LBBIs (including many published Social Stories) are not very storylike at all. Further, although the basis of these formulas is experience and logical thinking, no data-based investigations support the sentence ratios or types. Another limiting factor on the guidelines for Social Stories involves Gray and Garand's (1993) original premise that the written stories should fit on a single sheet of paper with no visual images. For many students with disabilities, the absence of supporting media may hinder the effectiveness of the instruction by minimizing the opportunity for students to personalize and "see" how the stories might fit their own situations. This problem may occur frequently for students with autism, many of whom have self-reported that they think in pictures (Grandin, 1995).

Most of the published research on Social Stories indicates that many people do not strictly follow Gray's guidelines for sentence type, ratio, or page layout (Hagiwara & Myles, 1999; Swaggart et al., 1995); current practice frequently uses pictures and pictorial images. Finally, although the specific sentence types and ratios used in a traditional Social Story may be appropriate for some people and situations, other types of sentences and story formats can have a more powerful impact in other situations. For example, formats that include visual lists, directive guidelines, and picture demonstrations might be more effective than written scripts alone for learners with cognitive or language impairments. All these formats more accurately reflect the fuller range of LBBIs.

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An Intervention for Students and Employees With Developmental Disabilities

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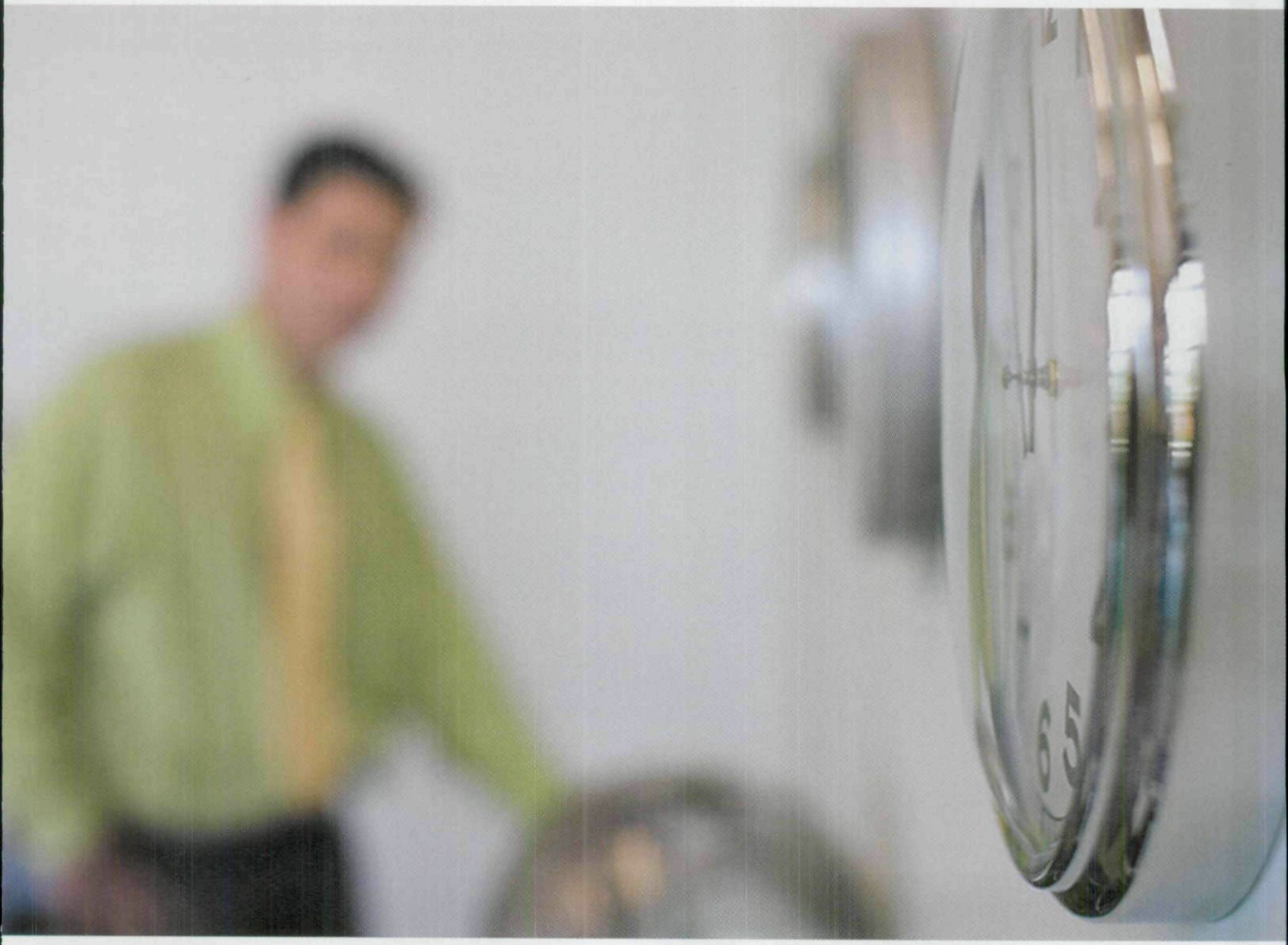

What Does the Literature Say?

The literature search revealed only two published studies that examined the use of Social Stories for people with disabilities other than autism and one additional study that expanded this intervention in several ways. In 2004, Moore published a case study that described the effectiveness of a Social Story intervention for a 4-year-old boy with learning disabilities. This child demonstrated chronic problems with his sleep pattern, including sleeping only with his mother, taking hours to fall asleep, waking repeatedly to demand milk, and then waking early in the morning. If his mother did not meet any of these demands, the result was a tantrum that involved screaming and aggressive behavior. A Social Story for him outlined a new, realistic bedtime routine, with positive consequences (based on a token economy) for his cooperation. The boy earned a sticker for his chart for each night that was determined to be a "good night." He could trade these stickers for a visit to the treat box. Anecdotal results indicated that the young boy soon accepted the new sleep arrangements with little difficulty.

Toplis and Hadwin (2006) presented the second published demonstration of a Social Story for children with disabilities other than autism. These investigators examined the use of Social Stories to improve the lunchtime behavior of five students whom educators identified as exhibiting challenging behavior in school. The researchers crafted a story to encourage the students to enter the school dining hall independently and take their seats within 2 minutes of dismissal from class. This study found that the stories were effective for 3 out of 5 children; 2 of the study participants continued to need prompting throughout the study to enter the dining hall after being dismissed from class.

The recent focus on LBBIs saw an expansion of the sentence types and ratios advocated for Social Stories in an effort to create literacy-based interventions for individuals with other serious developmental disabilities. To meet the comprehension and language abilities of three employees with severe developmental disabilities, Bucholz, Brady, Duffy, Scott, and Kontosh (in press) incorporated changes in sentence types and ratios and expanded presentation formats to include photographs. Each of the employees improved his or her work behavior after brief periods during which an employment supervisor presented their customized picture books and rehearsed the skills from the messages in the text. This study extended the structure of literacy-based interventions and opened the class of interventions to employability behavior and to adults with severe developmental disabilities. Bucholz et al. (in press) gives a fuller description of the methods and results.

Creating LBBIs

Creating and using LBBIs in employment settings is not a time-consuming or difficult task. Teachers, paraprofessionals, job coaches, and others can easily develop and use these interventions for individuals whom they teach or supervise. To begin, the writer of the LBBI first targets an employment behavior that needs improvement or further development. The writer can determine this behavior by directly observing students or employees in their work settings or through vocational assessments (Brady, Rosenberg & Frain, in press). Identification of the targeted behavior should include input from the individuals themselves (Thoma, Williams, & Davis, 2005). Prioritizing behaviors for intervention is important (Cooper, Heron, & Heward, 2007). A behavior that involves any danger on the job should be the first to receive attention; other potential targets include behaviors that might lead to demotions or dismissal from the job. Questions to answer when prioritizing instructional targets include the following:

- With what frequency is the behavior displayed?
- Has the individual been displaying the behavior for a long period of time, or is it a relatively new behavior?
- What is the current reinforcement for the behavior?

For example, a new employee may have difficulty keeping a work area clean, following safety rules, or interacting with co-workers or a supervisor in a positive manner. Although each of these concerns might be a useful target for improvement, ignoring safety rules can lead to a dangerous situation on the job and therefore is an important instructional target.

When you have selected the instructional target, you must determine the function of the behavior by conducting a functional assessment and then teach a different behavior that meets the same function. A functional assessment provides everybody involved with a clear definition of the targeted behavior and establishes a reasonable explanation that indicates why the behavior occurs (Cooper et al., 2007). For example, a student who frequently bothers her co-workers and risks being removed from her training site might be attempting to gain attention from co-workers or a job coach because she is bored or needs assistance with the job tasks. A possible instructional objective or replacement behavior for this student that meets the same function might be to teach the student to ask for help or for additional or different tasks.

After you have identified the function of the targeted behavior and selected a replacement behavior to serve as an instructional objective, you can create an LBBI to address the targeted behavior, as well as teach the replacement behavior (see box, "Step-by-Step Procedure for Creating an LBBI"). When creating an LBBI, you must do the following:

- Create an intervention that is within the comprehension and language levels of the individual for whom it is being created.
- Decide whether some type of illustration might improve the effectiveness of the intervention. The illustration might include photographs,

line drawings, comic-strip-type illustrations, clip art, or even links to sounds and video.

- Individualize the LBBI for the person for whom you are writing it. It can be in a simple presentation format, or it might involve a great deal of customization. For example, a simple individualization might include presenting a specific set of instructions or reminders, using pictures to illustrate the desired behavior, and reading the LBBI with the student as a picture book. A more complex individualization might involve presenting sentences in the first-person or third-person perspective, using a software program to create the LBBI, and incorporating sound or short video clips.

After the intervention is complete, introduce it to the student or employee for whom you created it. Let the person know that you can share the LBBI daily, as a means of helping the person improve his or her employability. That person will typically have a preference for when during the workday you should present the LBBI—such as right before the time when the targeted behavior typically occurs, just after the start of the day, or even right before the end of the day. After the initial introduction, some individuals may want to read the LBBI by themselves; others may want to listen to a recording of the LBBI, have a job coach read the LBBI to them as part of their instructional support, or view the LBBI at a computer station.

Step-by-Step Procedure for Creating an LBBI

Step 1: Identify potential instructional target behaviors (e.g., increasing work productivity or accuracy).

Step 2: Prioritize the identified behaviors, and pinpoint the most immediate need to select one to create the LBBI.

Step 3: Conduct a functional behavioral assessment to develop a hypothesis for the function of the behavior for the student.

Step 4: Select the instructional objective or replacement behavior that matches the identified function of the targeted behavior.

Step 5: Write a story to introduce the replacement behavior. Match the cognitive and language level of the individual for whom you are writing the story to the level of the story. Use photographs, illustrations, directions, clip art, and so on, as necessary to accurately and clearly teach the replacement behavior.

Step 6: Introduce the LBBI to the individual for whom the story was written.

Step 7: Evaluate the effectiveness of the LBBI by collecting data on the target and replacement behaviors.

Step 8: Update the LBBI as needed, on the basis of input from the student or employee, teacher, job coach, and so on.

Sample Interventions

Greg's Literacy-Based Behavioral Intervention

Greg is a 57-year-old man with Down syndrome who works in a sheltered mailroom training area with approximately 20 co-workers and two supervisors. He has an IQ of 30 and is able to recognize his first name in print, print his first name and last initial, identify 12 letters of the alphabet, and name nine different numerals. Greg communicates in one-, two-, and three-word utterances, many of which are short phrases that he uses repeatedly for different situations.

Before the intervention, Greg typically required a great deal of direction to return to work from his lunch and break periods. Co-workers often furnished this direction by walking him back to his mail room workstation while providing continuous verbal prompts to return. Without this high level of direction, Greg typically took at least 15 minutes to return to work after the break time had ended. The LBBI written for Greg attempted to help him return to work from breaks on time and with less direction from his co-workers. A functional behavioral assessment of Greg's late returns to work after break periods suggested that the goal of his behavior was to gain the attention of his co-workers and supervisor. Providing Greg with an LBBI about the importance of returning to work promptly gave him positive individual attention. The LBBI also taught him that he could gain additional positive attention when he arrived to work promptly following a break. The LBBI offered Greg an appropriate way to gain attention and therefore eliminate the need for his returning to work late.

Greg's LBBI considered his comprehension level and his need for high levels of direction, so it was in the third person with very specific and directive sentences. Each page of Greg's LBBI included a single concept, with a photograph depicting that concept opposite the text. The intervention therefore differed substantially from the structure and format advocated for Social Stories and accommodated Greg's significant cognitive and language deficits. A supervisor read Greg's story to him every day before his morning and lunch breaks. The goal of the LBBI was to teach Greg to be more independent and return to work on time following his break periods. Greg's prompts consisted of three high-level prompts (escorting him back to work, physically prompting him with a gentle push or pull, or prompting him verbally) or returning independently or while walking (unprompted) with a co-worker. The two break periods selected to evaluate the effects of the LBBI were morning break and lunchtime. Table 1 summarizes Greg's LBBI.

Before Greg received the LBBI, he needed a co-worker to escort him back to work from each break—and even then he was usually quite late. If co-workers did not continuously prompt

Table 1. Content of Greg's LBBI

Page	Story Content	Photographs
1	This is Greg.	Photo shows Greg at his mail-sorting station.
2	Greg needs to be back to work on time.	Three photos, one of Greg looking at his watch and two photos of the workroom clock displaying the times that Greg needs to be back from both breaks.
3	If someone says, "Break is over," Greg needs to go right back to work.	Photo shows Greg leaving the break room.
4	Greg can walk with his friends, but he needs to go right back to work. No stopping and talking. Go right back to work when break is over.	Greg and co-workers approaching mail room together.
5	Ms. Eve is happy when Greg is back to work on time from break.	Greg's supervisor welcomes him back to the mail room.
6	Greg is going to eat fast. He needs to get back to work as soon as break is over. He's going to finish eating, clean up, and get back to work.	Greg puts wrappings from his snack into a trash can when he exits the break room.
7	Look, Greg is on time! Good job, Greg!	Greg reenters the mail room.

him to return, he did not do so. When the supervisor presented the LBBI, Greg returned more independently and on time, and he began this new pattern with the first reading of the LBBI; after only 2 weeks, he never required more than verbal prompts to return after his breaks were over. During a brief return to baseline when the LBBI was removed, Greg once again required an escort to return from break or he did not return. When the LBBI was reintroduced, Greg's reliance on co-workers again diminished and he typically returned to work with no prompting.

A number of positive outcomes occurred as a result of Greg's returning to work on time following his break periods. Being on time increased his time on task and therefore increased his work productivity. This increased productivity enabled Greg to earn more money for his work. Furthermore, Greg received social praise from his co-workers and supervisors for returning to work on time.

Roberta's Social Story

Roberta was a 48-year-old woman who assembled various products at a community worksite. After finishing her job tasks, Roberta typically wandered off, got into trouble, or fell asleep.

Roberta's instructional target—determined after conversations with Roberta and her supervisors and through observations—was asking for more work materials. A functional assessment of Roberta's behavior suggested that the function of her behavior was to alleviate boredom when she did not have work to finish. The goal of teaching Roberta to ask for more work was to keep her engaged and help eliminate boredom. Keeping her engaged allowed her to gain the approval of her co-workers and supervisors while she earned more money for her work. Thus, the replacement behavior enabled Roberta to gain the same mixed functions as her wandering, bothering co-workers, or sleeping.

LBBIs furnish information that helps individuals know what to do in a given situation.

The Social Story for Roberta followed Gray's (2000) sentence ratio. It contained five descriptive sentences, two perspective sentences, and one directive sentence. The descriptive sentences were statements of fact. The perspective sentences informed Roberta about the perspective and feelings of others. The directive sentence provided Roberta with a suggested behavior to use when she had completed all her work and needed more to do.

During daily observations, the observer recorded Roberta's level of work engagement, as well as the number of requests that she made for more work. Before the intervention, Roberta made almost no requests for additional work; observations indicated that she remained engaged in work less than 40% of the time. After a supervisor presented Roberta's story to her, Roberta's requests for work increased significantly. In addition, her work engagement increased to an average of 76% of the time, with 100% engagement on half the days. Table 2 summarizes Roberta's Social Story.

Final Thoughts

LBBIs have strong potential as a successful intervention when educators consider the cognitive level, language ability, age, interests, and support needs of the person for whom they are writing the LBBI. Although Greg's and Roberta's LBBIs were for adult employ-

Table 2. Content of Roberta's LBBI

Page	Story Content	Photographs
1	My name is Roberta.	Photo shows Roberta with her supervisor.
2	This is where I work.	Photo shows the building where Roberta works.
3	Some people work hard at work.	Photo shows people working.
4	My boss is happy when I work hard.	Photo shows Roberta's supervisor smiling.
5	Good workers sometimes finish their work and ask for more.	Photo shows a co-worker with completed work raising a hand to ask for more.
6	Sometimes I finish my work so I can say, "Can I have more work?"	Photo shows Roberta asking her supervisor for more work.
7	It is important for people to keep working when they are at work. I can try to keep busy by telling someone when I need work.	Photo shows a group of people working.
8	If I keep working, I can make more money. People like to make money.	Two photos; one of money and a second of a necklace.

ment contexts, educators can easily adapt this intervention for children and adolescents with a wide range of disabilities. LBBIs furnish information that helps individuals know what to do in a given situation, as well as provide an opportunity to rehearse the behavioral expectations presented in the stories. The language and illustrations personalize the stories and help students and employees visualize themselves engaged in the desired behavior. Depending on the needs of the individual who will use the LBBI, directive or coaching messages can outline the specific steps of a task to reduce the ambiguity that so often leads to confusion or performance problems. An LBBI is an easy-to-create and easy-to-implement instructional strategy that has the potential to be very effective for teaching skills to the people for whom it is written.

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