

Using Self-Monitoring to Improve Performance in General Education High School Classes

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Abstract: We used a multiple-baseline-across-participants design (Kazdin, 1982) to examine the effects of self-monitoring on selected social and academic behaviors of high school students with mental retardation who were enrolled in general education classes. Target behaviors and self-monitoring strategies were individualized for participants based on input from students and their teachers and parents, students' individualized education program (IEP) goals, and direct observation of students in general education settings. Occurrences of self-monitoring were associated with improvement in target behaviors across participants. In addition, students' teachers and classmates perceived improved performance of target behaviors when students used their self-monitoring strategies. This study adds to the literature as one of few studies investigating self-monitoring by high school students with mental retardation in general education settings.

Inclusion in everyday high school experiences offers potential benefits for students with disabilities. For example, participation in general education classes and activities has been associated with acquisition of valued behaviors such as academic skills (e.g., Ryndak, Downing, Jacqueline, & Morrison, 1995), social skills (e.g., Hughes, Killian, & Fischer, 1996; Kennedy, Shukla, & Fryxell, 1997), communication skills (e.g., Hunt, Staub, Alwell, & Goetz, 1994), and motor skills (e.g., Gee, Graham, Sailor, & Goetz, 1995).

If students with disabilities are to access the benefits available in general education settings, appropriate support that maximizes participation in general education classes and social activities must

be provided (Hunt & Goetz, 1997). Such support includes providing an educational assistant to work with a student, modifying the format of classroom assignments, or having a general education peer provide social support during extracurricular school activities (Janney & Snell, 2000). Students may also learn to provide some of their own support (Agran, Snow, & Swaner, 1999), such as using pictures to prompt themselves to perform steps of a task, or verbally instructing themselves through a problem-solving sequence (Agran, 1997). Providing their own supports may decrease students' dependence on external assistance and allow students to participate in a variety of experiences in which instructional support is lessened, such as school sports events or community outings.

Self-management strategies are one means for students with disabilities to support their participation in general education activities. Self-management strategies, such as self-monitoring, may allow students to manage their own behavior

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rather than rely others (e.g., teachers, educational assistants, peers) to direct and monitor their performance (Wehmeyer, Agran, & Hughes, 1998). Students who engage in self-monitoring observe their behavior and discriminate when they have performed a targeted response (Agran, 1997). Self-monitoring is often paired with self-recording in which a student records when a targeted behavior occurs. Self-monitoring has been used successfully by individuals with disabilities to acquire or modify a range of academic and social behaviors (Wehmeyer et al.). For example, Miller, Miller, Wheeler, and Selinger (1989) taught an adolescent diagnosed with emotional disturbance to check-off steps required to complete subtraction problems with regrouping as he performed the steps. Accuracy improved from 0% to 98% after the student was taught to self-monitor. Frea and Hughes (1997) taught two high school students with mental retardation to self-monitor performance of appropriate social-communicative behaviors using a wrist monitor to indicate the occurrence of targeted behaviors. Self-monitoring was associated with a decrease in inappropriate behaviors displayed by both students and a corresponding increase in alternative, appropriate behaviors.

With few exceptions (e.g., Agran, Blanchard, Wehmeyer, & Hughes, in press), however, researchers have not investigated the use of self-monitoring strategies by high school students with disabilities to increase their participation in general education settings. Indeed, prior research suggests that instruction in self-management strategies within general education settings is underutilized (King-Sears, 1999; Wehmeyer, Agran, & Hughes, 2000). For example, only 35% of special education practitioners who were queried regarding their educational practices reported providing instruction in self-monitoring to their students (Agran et al., 1999). Further, only 3% of these respondents reported observing their students actually using self-monitoring strategies within school settings. Relatedly, in a national survey of special education teachers, Wehmeyer et al. found that while the majority of respondents ranked instruction in self-monitoring as “very important” to their students, only 52% reported actually providing instruction in self-monitoring. These findings suggest a need to investigate the effects of systematic instruction in

self-management strategies, such as self-monitoring, which may allow high school students with disabilities to provide some of their own supports and maximize their participation in general education environments.

The purpose of this study was to investigate effects of self-monitoring on the academic or social performance of high school students with mental retardation in general education settings. Target behaviors and corresponding intervention strategies selected for each student were individualized based on input from students and their teachers and parents, students’ academic or social skill needs as identified by examination of their individualized education program (IEP) goals, and through direct observation of students in general education environments. We collected repeated measures of students’ performance of target behaviors and self-monitoring strategies to examine the effects of the intervention. We also assessed the perceptions of students’ peers and teachers concerning students’ performance of target behaviors after implementation of the intervention, as a social validation measure.

Method

Participants

Four high school students enrolled in a large, urban comprehensive high school participated in this study. Participating students were drawn from a pool of 32 students enrolled in classes for students with extensive support needs. Criteria for participation were: (a) identification by special and general education teachers as students who required academic or social support to successfully participate in general education settings, (b) eight weeks of prebaseline observation in general education settings that indicated failure to complete class assignments in general education classes or engage in social interaction with general education peers, and (c) an IEP goal to increase engagement in general education classroom social and academic activities.

Mia was a 19-year-old Caucasian young woman diagnosed with mental retardation and a hearing impairment. Mia was enrolled in two general education classes, occupational health and introduction to child care, and ate lunch with her general education peers. She participated in

employment training in the community for one class period per day. Mia spoke very softly in short sentences. Her teachers described her as extremely shy, and observation revealed that she typically kept her head lowered (i.e., her chin resting on her chest) during classroom activities. Her family and teachers reported that her long-standing practice of doing so was causing spinal difficulties and social isolation. Mia did not initiate interaction with others or actively participate in classroom activities with general education peers. She rarely made eye contact when spoken to and often placed her hands over her face or mouth when responding to others' initiations.

Vondre, a 19-year-old African American young man identified with autism and mental retardation, was enrolled in a general education culinary arts class and ate lunch with his general education peers. He had a part-time job at a local grocery store after school. Vondre spoke in short phrases, but typically relied on gestures to communicate with others. He rarely initiated or responded to interactions from peers, often physically removing himself from situations necessitating interaction with others. During the few interactions in which he did engage, he did not make eye contact or display facial expressions. One of his primary tasks in the culinary arts class was baking cookies with classmates that were sold by class members during breaks between class periods to raise money for class supplies and materials. Vondre participated in cookie sales, but observation indicated that he avoided looking at or speaking with students or teachers who were buying cookies.

Jamal and Michael were 16-year-old African American young men identified with mental retardation. Jamal was enrolled in a general education auto mechanics class and participated in employment training in the community one class period per day. When given written class assignments in his auto mechanics class, he typically copied information at random from the text rather than accurately answer questions. Jamal was receiving a failing grade in the class, and stated that he did not like going to class because peers teased him about his poor classroom performance. Michael was enrolled in an integrated physical

education class and ate lunch during the same period as his general education peers. He characteristically spoke in single words or short phrases. Michael often stuttered, and his speech was difficult for others to understand. He had been prescribed a hearing aid, but did not wear it. Observation indicated that Michael did not initiate interaction with his general or special education peers. He preferred to engage in solitary activities (e.g., computer games) rather than participate in classroom social or academic activities. During lunch period in the cafeteria, he typically sat quietly at his table, watching but not interacting with peers. (Additional participant characteristics are found in Table 1.)

Settings

All observations took place in the high school during four 90-min class periods, which comprised the school day. Training and generalization sessions for Mia occurred in her general education occupational health classroom during the last 20 minutes of the class period, during which time students could interact socially while they completed assignments or put away class materials. Training for Jamal took place in his special education classroom, and generalization sessions were conducted in the auto mechanics classroom when the entire class was given written assignments by the teacher. Training and generalization sessions for Vondre occurred in the hallway outside of his culinary arts classroom in the setting in which culinary arts students sold cookies to students and teachers. Training for Michael occurred in his special education classroom and in a school gymnasium during his physical education class. Generalization sessions took place in his physical education class and in the high school's cafeteria during lunch period.

Target Behaviors

Individual target behaviors were selected for each participant based on (a) educational goals suggested in discussion with the students, their teachers, and students' families, (b) review of their IEP goals, and (c) direct observation of their performance in general education settings. Mia's

TABLE 1

Participant Characteristics

<i>Participant</i>	<i>Diagnosis and IQ Assessment</i>	<i>Adaptive Behavior Assessment^a</i>	<i>Speech/Language Assessment^b</i>	<i>Medical/Behavioral History</i>
Mia, 19	Mental retardation, hearing impairment 72 ^c	Communication: 40 Daily Living Skills: 66 Socialization: 22 Composite: 39	Not available	History of self-injury; unilateral hearing loss
Vondre, 19	Autism, mental retardation 44 ^d	Communication: 55 Daily Living Skills: 65 Socialization: 55 Composite: 51	SS: <40; Age equivalent: 4-9	Avoids social contact
Jamal, 16	Mental retardation 60 ^e	Communication: 51 Daily Living Skills: 68 Socialization: 58 Composite: 54	SS: 73; Age equivalent: 7-10	None available
Michael, 16	Mental retardation 45 ^c	Communication: 45 Daily Living Skills: 62 Socialization: 68 Composite: 54	Not available	History of hearing loss but does not wear hearing aid

^aVineland Adaptive Behavior Scales, ^bPeabody Picture Vocabulary Test-Revised, ^cStanford-Binet Intelligence Test, ^dLeiter International Performance Scale, ^eWeschler Intelligence Scale for Children-Revised.

target behavior was the percentage of intervals in which she held her head up when interacting with a general education peer. *Head up* was defined as her head being at an angle of at least 75° in relation to her chest, with her eyes oriented toward a peer's face. The target behavior selected for Vondre was the percentage of opportunities per session in which he made a correct social response to customers during cookie sales. *Correct social response* was defined as saying "Thank you" to a customer after the individual had placed money in Vondre's hand. Jamal's target behavior was the percentage of correct written responses per worksheet on modified written class assignments. Based on input from Jamal's auto mechanics instructor, we developed modified worksheets that consisted of 10 questions, each of which depicted an auto repair tool drawn from a list of over 100 tools that were found in the class text and that all students were required to identify. Pictures of tools were randomized daily across worksheets. *Correct written responding* was defined as writing the correct name for a tool on the line next to a picture

of that tool on his worksheet. Items left blank or labeled incorrectly were scored as incorrect. The target behaviors selected for Michael were percentage of intervals in which (a) he initiated interaction with a general education peer or (b) a general education peer responded to his initiations. *Initiation* was defined as performing a verbal or motor behavior directed toward a peer that introduced a new topic or expanded an existing topic. *Responding* was defined as performing a verbal or motor behavior in response to an initiation.

Self-Monitoring

Participants were taught individualized self-monitoring strategies specific to performance of their target behaviors. (See "Self-monitoring training" for more detail.) Self-monitoring for Mia was defined as looking at or touching a picture prompt card to direct herself to keep her head upright. Self-monitoring for Vondre was defined as looking at the money placed in his hand by cookie sales customers to prompt him to say

“Thank you.” Self-monitoring for Jamal referred to placing a check on a self-monitoring form after he performed each task on his modified worksheets. Self-monitoring for Michael was defined as looking at a drawing in a picture prompt book to prompt himself to make a conversational initiation to a peer and then turning the page in the book to indicate that he had initiated conversation.

Social Validation Measures

At the conclusion of the study, we asked peers or teachers in participants’ classes to complete questionnaires composed of ratings and open-ended questions to determine their perceptions of participants’ performance of individual target behaviors. We also queried one participant, Mia, regarding perceived changes in her target behavior.

Experimental Design and Conditions

We used a multiple-baseline-across-participants design (Kazdin, 1982) to evaluate the effects of self-monitoring on participants’ target behaviors. There were three experimental conditions: (a) baseline, (b) self-monitoring training, and (c) maintenance. We collected generalization data daily across all conditions. Self-monitoring training was provided daily during the training condition only, before data collection in the generalization session.

Baseline. Baseline observations for Mia occurred when she was in proximity (i.e., 1.5 m) of a general education peer who had volunteered to interact with her during the free time portion of the occupational health class. The general education peer was instructed by observers to respond to Mia’s interactions but not to initiate conversation. No instructions to interact or feedback on performance were provided to Mia. Baseline observations for Vondre took place while he was engaged in cookie sales to students and teachers in the hallway outside his class during class breaks when students were passing between classes. No instructions or feedback were provided to Vondre during observation. During baseline sessions for Jamal, an observer gave him a modified worksheet during the portion of his auto mechanics class in which students completed written assignments. No verbal instructions were provided and no feedback was given on his performance. Baseline observa-

tions for Michael occurred when he was in proximity (i.e., 1.5 m) of a general education peer who had volunteered to interact with him during the lunch period in the cafeteria or during his physical education class. An observer told the general education volunteer that Michael would like to “talk with you” and asked the student to respond to Michael’s initiations but not to initiate conversation. No instructions to interact or feedback were provided to Michael.

Self-monitoring training. Self-monitoring training began with Mia, and was introduced sequentially by the fifth author across the remaining participants. Number of training sessions per participant was 2, 2, 2, and 3 for Mia, Vondre, Jamal, and Michael, respectively. For all participants, the trainer provided a rationale for use of the self-monitoring strategy and used modeling, direct instruction, guided practice, and corrective feedback to teach the self-monitoring strategy. Training was individualized for each participant as follows.

Mia was taught to self-monitor her behavior using a picture prompt consisting of a black-and-white-line drawing (Johnson, 1992) mounted on a 10 x 10 cm laminated card. The line drawing represented a person smiling and waving with the words “head up” and “eye contact” printed above the drawing. Mia was taught to (a) place the picture prompt on the table or desk where she was sitting, (b) look at the card before speaking, and (c) lift her head into an upright position and look at a peer volunteer as they interacted. A naturally occurring event (i.e., a customer placing money in Vondre’s hand) was chosen as a prompt for Vondre to say “Thank you” to customers. The trainer taught Vondre to (a) look at the money when it was placed in his hand by a customer, (b) look at the customer, and (c) say “Thank you.”

Jamal was taught to self-monitor his performance on modified worksheets by using self-monitoring forms on which were written three prompts to guide his completion of each question on his worksheet: (a) “Find picture,” (b) “Find figure caption,” and (c) “Write name of tool.” These prompts were designed to direct Jamal to (a) find in his text the picture of the tool displayed in each question, (b) find the figure caption for the picture, and (c) write the name of the tool found in the figure caption. Jamal was taught to place a

check in a box beside each written prompt after the prompted worksheet task was completed. He repeated the three-step process for each of the 10 questions on the worksheet.

Michael was taught to self-monitor initiation of interaction with a general education peer using a picture prompt booklet (Hunt, Alwell, Goetz, & Sailor, 1990) containing 10 black-and-white line drawings (Johnson, 1992) mounted on 8 x 10 cm laminated cards that were hole-punched and bound. Each card contained the same line drawing (i.e., of a person waving) and the word "hello" printed above it. After a general education peer volunteer was in proximity, Michael was taught to (a) turn to the first card, (b) look at the drawing, (c) initiate an interaction with the general education peer, and then (d) turn the page. He continued to turn pages, look at the cards, and initiate to the peer for as long as he and the peer wished to interact.

Maintenance. Maintenance was assessed after self-monitoring training was withdrawn for each participant. During maintenance, baseline conditions were in effect with the following exception. Prior to observation, Mia was given her picture prompt card and Michael was given his picture prompt book. As during baseline, observers provided no corrective feedback to participants or general education peers.

Data Collection Procedures

Direct observation of outcome measures was used across 5-min generalization sessions for Mia, Vondre, and Michael. For Mia and Michael, we used a 10-s observe, 5-s record partial-interval recording system to assess percentage of intervals in which target behaviors and self-monitoring behaviors occurred, scoring them as "occurred" or "did not occur." For Vondre, we recorded the number of opportunities (i.e., customer handing him money) to verbalize the target behavior and self-monitor that occurred during each session. We also recorded the percentage of opportunities in which Vondre actually performed these behaviors. For Jamal, observers scored his worksheets and self-monitoring sheets at the end of each generalization session to determine the percentage of correct written responses and self-monitoring steps performed.

Observers and Observer Training

The first author and two graduate students served as observers during generalization sessions and as raters of Jamal's completed worksheets. Before data collection, observers discussed the definitions of outcome measures and description of observation and scoring procedures. Observers then practiced observation and recording procedures in the actual settings and practiced scoring completed worksheets. Observers were required to reach a criterion of 80% interobserver and interrater agreement for all outcome measures before collecting data.

Interobserver Agreement

The point-by-point agreement method (Kazdin, 1982) was used to assess the percentage of agreement for measures of target behaviors. Interobserver agreement on target behaviors for Mia, Vondre, and Michael was assessed during a minimum of 40% of generalization sessions within each condition, and interrater agreement was measured for a minimum of 29% of Jamal's modified worksheets completed during generalization sessions within each condition. Overall interobserver or interrater agreement means and ranges across generalization sessions for participants were: for Mia, percentage of intervals in which her head was up (92%; 55-100%) and percentage of intervals of self-monitoring (100%; 100%); for Vondre, percentage of opportunities in which he said "Thank you" (97%; 80-100%) and percentage of opportunities in which he self-monitored (96%; 60-100%); for Jamal, percentage of correct written responses per modified worksheet (98%; 90-100%) and percentage of self-monitoring steps performed (100%; 100%); for Michael, percentage of intervals in which he initiated (97%; 70-100%), percentage of intervals in which a partner responded (97%; 70-100%), and percentage of intervals of self-monitoring (98%; 80-100%).

Results

Generalization Sessions

Figure 1 (upper panels) shows percentage of intervals in which participants performed individual target behaviors or percentage of correct

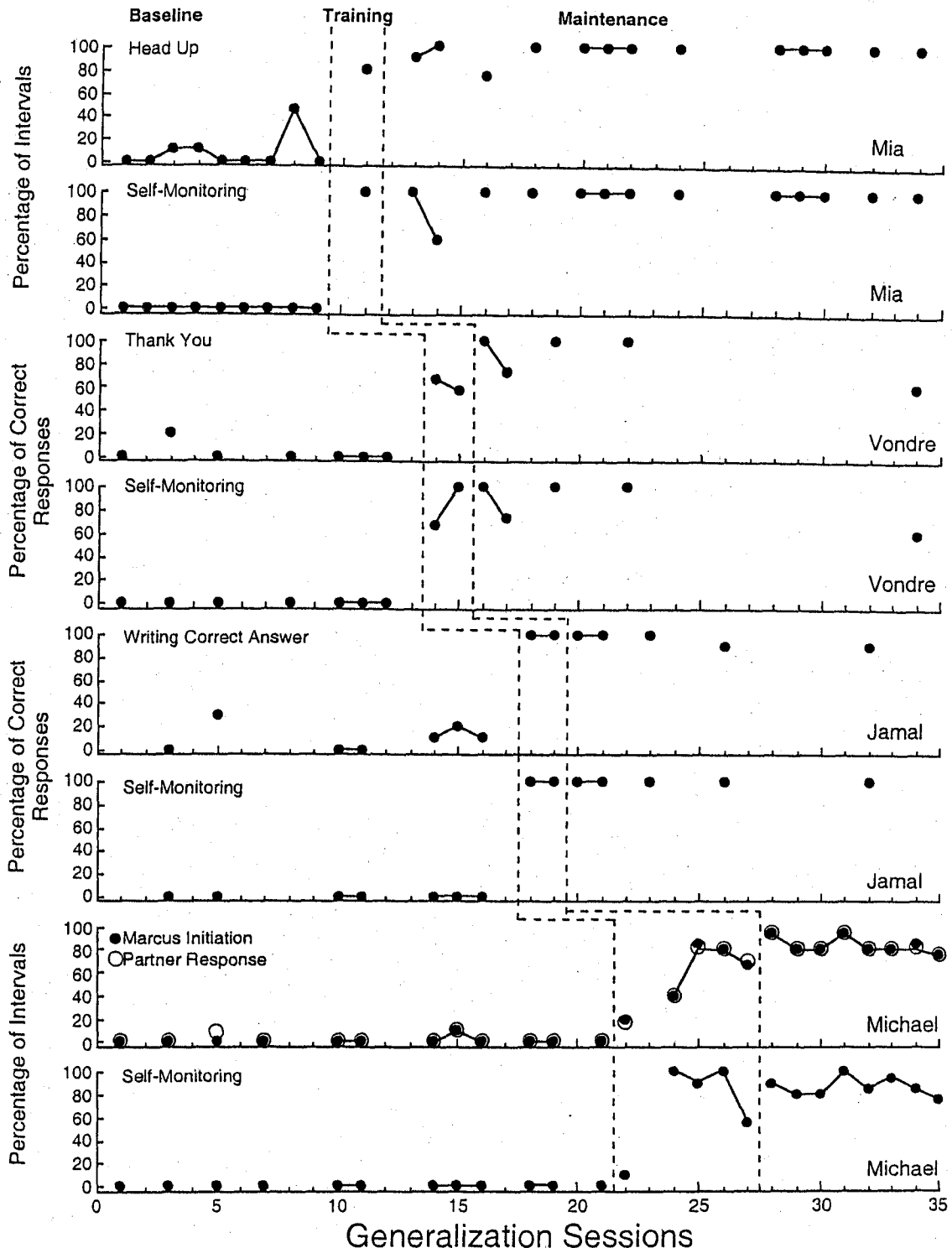


Figure 1. Percentage of intervals performing target behaviors or percentage of correct responses per opportunity (upper panels) for Mia, Vondre, Jamal, and Michael. Percentage of intervals of self-monitoring or percentage of opportunities of self-monitoring (lower panels) for Mia, Vondre, Jamal, and Michael.

responses made by participants during generalization sessions across the three experimental conditions. The lower panels of Figure 1 show percentage of intervals of self-monitoring or percentage of self-monitoring steps performed by participants.

Mia. During baseline sessions, Mia rarely held her head in an upright position when in proximity of a peer ($M = 7\%$ of intervals) nor did she self-prompt. Self-monitoring training resulted in an immediate increase in the percentage of intervals in which she held her head upright ($M = 80\%$) and in the percentage of intervals in which she self-monitored ($M = 100\%$). The percentage of intervals in which Mia held her head upright during maintenance never dropped below 75% ($M = 97\%$) and remained at 100% for the last ten consecutive generalization sessions. In addition, Mia continued to self-monitor frequently throughout the maintenance condition ($M = 97\%$; range = 60-100%).

Vondre. Figure 1 shows that Vondre rarely performed the expected social response (i.e., saying "Thank you") or self-monitored when accepting money from customers during cookie sales in baseline sessions. Mean percentage of opportunities in which he said "Thank you" in this condition was 3% (range = 0-20%). Implementation of self-monitoring training was associated with an immediate increase in percentage of opportunities with correct social responses ($M = 62\%$) and self-monitoring responses ($M = 84\%$). After withdrawal of training, Vondre continued to use the self-monitoring strategy and respond appropriately to customers by saying "Thank you." His mean performance in generalization sessions in the maintenance condition was 87% (range = 60-100%) of opportunities for both measures.

Jamal. During baseline sessions, Jamal rarely completed items on modified worksheets correctly and did not perform self-monitoring steps. Jamal acquired the self-monitoring strategy immediately upon implementation of training (100% occurrence). The accuracy of his written responses on modified worksheets increased immediately to 100% and maintained at a high level throughout the maintenance condition ($M = 96\%$; range = 90-100%). He also continued to perform self-

monitoring steps during 100% of the opportunities available for the remainder of the study.

Michael. Michael engaged in interaction with a general education peer on only one occasion during baseline generalization sessions and never self-monitored. During the training condition, mean percentage of intervals in which Michael initiated to general education peers in generalization sessions increased to 58%, and mean percentage of intervals in which peers responded increased to 71%. Mean percentage of intervals in which he self-monitored increased to 71% during the training condition. During generalization sessions in the maintenance condition, mean percentage of intervals in which he initiated increased to 84% (range = 75-95%), and mean percentage of intervals in which a general education peer responded increased to 83% (range = 75-95%). Michael continued to self-monitor his target behavior throughout this condition ($M = 86\%$; range = 75-100%).

Social Validation

Responses on completed social validation questionnaires indicated the following. Mia's classmates and general education teacher, in general, agreed that she was holding her head up more frequently during peer interactions when she self-monitored, and that they enjoyed talking to her more. Mia perceived that she was holding her head up more during interactions, was talking to classmates more, and that others enjoyed talking to her more. With respect to Vondre's performance, a classmate who was in proximity during cookie sales indicated that Vondre was saying "Thank you" to customers more frequently. The classmate also indicated that he enjoyed working with Vondre more during cookies sales. Vondre's culinary arts teacher's responses corroborated these perceptions. A questionnaire completed by Jamal's auto mechanics instructor indicated that he perceived that both Jamal's classroom performance and course grade had improved. Finally, general education peers who had interacted with Michael indicated that he was initiating and responding more frequently during conversations when he self-monitored and that they enjoyed talking with him more. Michael's special education teacher concurred but did not attribute the change to Michael's self-monitoring.

Discussion

With appropriate support, students with disabilities are more likely to benefit from inclusion in general education curricular and social activities. In this study, four high school students with mental retardation were taught to self-monitor to help support themselves in general education settings. Self-monitoring by the students was associated with improvements in individualized target behaviors, which had been identified by students, their teachers, and their parents. Specifically, we found that when self-monitoring, (a) Mia held her head up when interacting with general education peers in her classroom, (b) Vondre said "Thank you" appropriately to cookie-sales customers, (c) Jamal correctly completed written classroom assignments, and (d) Michael initiated interaction with general education peers who responded to his initiations. Individualizing target behaviors allowed us to address students' specific needs as identified by themselves and important others, as well as design self-monitoring strategies that were appropriate within the context of each behavior (e.g., completing worksheets in an auto mechanics class). This study adds to the few investigations of self-monitoring by students with mental retardation that have been conducted in general education settings (e.g., Agran et al., in press). Our findings extend the literature on self-monitoring in general education settings in important ways.

First, previous investigators of self-monitoring among high schools students with mental retardation combined external reinforcement (e.g., money or free time activities) with self-monitoring to improve performance of high school students with mental retardation (e.g., Agran et al., in press; Frea & Hughes, 1997). Therefore, it is not possible to separate the effects of self-monitoring from those of external reinforcement on participant behavior. In this study, no external manipulation was needed in addition to self-monitoring training to achieve substantive participant behavior change. Results suggest that self-monitoring alone was responsible for improving a variety of target behaviors across participants in general education settings.

Relatedly, previous researchers failed to report measures of occurrence of self-monitoring behavior (e.g., Agran et al., in press; Frea & Hughes,

1997). Therefore, it is not known if participants actually used the self-monitoring strategies they were taught. Without this information, it is difficult to relate self-monitoring to changes in target behavior. In our study, repeated measures were taken of both self-monitoring and selected student behaviors on a session-by-session basis. Occurrences of self-monitoring were found to correspond closely to occurrences of target behaviors over time, supporting the role of self-monitoring in influencing behavior change. These findings are important because they suggest that self-monitoring has considerable potential for supporting students with mental retardation in general education settings even when used as the sole support strategy.

Second, self-monitoring strategies taught were simple, nonintrusive, and rapidly acquired (2 to 5 training sessions across participants). Rapid acquisition of self-monitoring may have been due to the simplicity of the strategies taught and the fact that the strategies were embedded within the naturally occurring routines of the target behaviors. For example, because Mia typically sat at her desk or a table in her classroom, a simple line drawing was placed on the desk in front of her to prompt her to raise her head. Similarly, the naturally occurring event of a customer handing Vondre money was used as a prompt for him to say "Thank you" within the routine of making a cookie sale. In addition, a trainer in provided instruction in self-monitoring alone while the trainer modeled the target behavior (e.g., holding head up or saying "Thank you"). Additional training sessions were not required to teach the target behaviors exclusively, such as teaching Jamal to use his text to find the correct name of a tool or teaching Michael to initiate conversation.

These findings are particularly relevant in light of the fact that few general education teachers report teaching students to self-monitor. For example, only 28% of 78 general education teachers surveyed in Utah reported teaching students self-monitoring strategies (Agran & Alper, 2000). In addition, classroom teachers report nationally that they believe they do not have the skills or training to provide instruction in self-monitoring to students (Wehmeyer et al., 2000). If we expect general education teachers to include students with mental retardation in the general

education curriculum, it is important to provide teachers with instructional procedures they can readily use to support these students in inclusion. Demonstrating that nonintrusive, simple-to-learn self-monitoring strategies, such as introduced in this study, were effective in promoting valued behavior by students with mental retardation in general education settings is an important contribution to the literature on inclusive educational practices. Informing teachers that selecting self-monitoring strategies that are simple and supported by naturally occurring events in the environment in which a behavior is expected to be performed may make teaching such strategies easier and more effective for teachers. In addition, the fact that general education teachers queried in our study indicated satisfaction with self-monitoring as an intervention, which they perceived was not intrusive or distracting, indicates that teachers may find self-monitoring to be an acceptable student support strategy to use in general education settings.

Several limitations to this study must be considered. First, researchers versus classroom teachers designed and introduced the self-monitoring strategies in this study. Although the strategies were simple and quickly acquired by participants, considerable thought was put into analyzing students' target behaviors and designing individualized self-monitoring strategies appropriate to each specific behavior. For example, we task-analyzed Vondre's cookie selling routine to determine a naturally occurring event that could prompt his saying "Thank you" response. Further, we used direct instructional procedures (e.g., modeling, opportunities for practice, corrective feedback) to teach self-monitoring behaviors. It is not known what prerequisite skills (e.g., applied behavior analysis or direct instruction) teachers may need to effectively design self-monitoring strategies appropriate to individual target behaviors and to teach these strategies to students with varying learning skills.

Second, we queried participants' teachers and classmates regarding their perceptions of improvements in participants' target behaviors. However, we asked only one participant (Mia) and no parents regarding their perceptions of target performance progress. Although all participants and their parents provided input into the choice of target

behaviors, only Mia was asked to judge if she perceived improvements in her behavior and if she was satisfied with these perceived changes. It is critical to determine participants' and important others' perceptions of the social importance of behavior change that has occurred following an intervention (Hawkins, 1991; Wolf, 1978) as well as their acceptance of the actual intervention. For example, we do not know if parents perceived changes in participants' behavior at home or whether participants found the self-monitoring strategies (e.g., Michael's communication booklet) to be intrusive in their general education settings.

Teaching students to self-monitor is a promising method classroom teachers can use to help students with mental retardation support themselves in general education settings. Self-monitoring strategies, such as those in our study, can be designed to be simple, nonintrusive, and readily taught. In addition, as demonstrated in this investigation, these strategies can be easily adapted to a variety of academic and social behaviors valued in general education environments. More widespread instruction in self-monitoring by general education teachers may increase the likelihood that students with mental retardation will succeed in and benefit from inclusion in general education curricula and activities.

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