Making the Most of Community-Based Instruction

Progress Monitoring for Strategic Decision Making

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TEACHING Exceptional Children, Vol. 53, No. 5, pp. 376–385. Copyright: 2020 The Author(s). DOI: 10.1177/0040059920973048

Mr. Lopez's 10th-grade class is responsible for the Tiger Store, a school-based enterprise that sells healthy snacks and school supplies to students and staff. Every week, Mr. Lopez's class takes a trip to a bulk discount store, where they make purchases to restock the store's inventory. Mr. Lopez knows that their weekly trips to the store provide his students with important opportunities to engage in the community, but he wonders how he can leverage this time outside of school to teach students new skills. Specifically, Mr. Lopez has noticed that Sandra, a 15-year-old diagnosed with autism, easily completes all the tasks she is asked to do at the store. Mr. Lopez wonders if he can use their time in the community to provide Sandra with opportunities to work on her problem-solving and social skills. He decides to modify some of the same progress-monitoring strategies he uses in the classroom to track and make decisions about Sandra's progress toward her instructional goals while she is in the community.

Community-based learning experiences in high school have been associated with a range of positive outcomes, including school attendance, academic achievement, career development, and postschool employment, among high school students with and without disabilities (Alsbury et al., 2020; Test et al., 2009). Community-based instruction (CBI) is one type of community experience in which students with disabilities work toward instructional goals while engaged in activities occurring in a natural environment outside of a typical school setting (Hoover, 2016; Rowe et al., 2015). Educators who implement CBI capitalize on their students' time in the community to ensure that students are doing more than simply experiencing a new setting; during CBI, students learn and generalize skills and knowledge that will support their engagement in that setting and future success. For example, CBI has been used to teach students how to use an ATM (Barczak, 2019), use a cell phone for safety (Bassette et al., 2018), and shop at a grocery store (Gil et al., 2019). Among students with intellectual and developmental disabilities across grade levels, evidence suggests that interventions taking place in community settings have positive effects on student learning, generalization, and maintenance of skills (Gilson et al., 2017; Walker et al., 2010).

The process can be broken down into four steps: (1) identify the student's instructional goal, (2) decide on appropriate progress monitoring tool(s), (3) collect data, and (4) track and analyze results to make instructional decisions.

CBI is a commonly implemented practice among transition service providers, including middle and high school special educators (Mazzotti & Plotner, 2016), making it important to ensure that instruction taking place in the community improves targeted skills. Data-driven decision making involves the systematic collection and analysis of data to inform instruction (Mandinach, 2012). Progress monitoring is an essential element in a data-driven process and provides educators with information on students' progress toward instructional goals, including CBI goals (Browder et al., 2011). Systematic implementation of progress monitoring and data-driven decision making is crucial because evidence indicates that these approaches promote improvement in student achievement (Stecker et al., 2005). Progress-monitoring approaches have typically targeted academic and behavioral goals (e.g., Filderman et al., 2019; Marx & Miller, 2020), and our review of the literature did not locate studies specifically focused on the implementation of data collection strategies during instruction in the community. However, effective progress-monitoring approaches in academic settings can also inform data collection in community settings as well as subsequent analysis and instructional decision making regarding CBI. Additionally, data collected during CBI can provide important information to inform the transition planning process. The Individuals With Disabilities Education Improvement Act (2004) requires that postsecondary goals be based on age-appropriate transition assessment. Transition assessment has been defined as an ongoing process to gather information about a student's needs, preferences, and interests, including informal assessments of a student's behavior in contexts similar to those they will encounter after high school (Sitlington & Clark, 2007).

Data-Driven Decision Making and Progress-Monitoring Approaches

By using appropriate data-driven decision making and progress-monitoring approaches, educators can be confident that their students are benefiting from CBI. However, many educators report that they have received little to no training on how to implement data-driven decision making to monitor the effectiveness of evidence-based practices, including CBI (Mazzotti & Plotner, 2016). Fortunately, monitoring students' learning during CBI does not have to be complicated. The process can be broken down into four steps: (1) identify the student's instructional goal, (2) decide on appropriate progress monitoring tool(s), (3) collect data, and (4) track and analyze results to make instructional decisions.

Step 1: Identify Goal

The first step of the CBI progress-monitoring process is to identify the student's instructional goal. Similar to instructional goals in school settings, goals during CBI may be academic (e.g., reading high-frequency words on signs), behavioral (e.g., using appropriate manners at a restaurant), social (e.g., greeting store employees), or functional (e.g., crossing the street safely). Researchers recommend that educators reflect on six considerations when selecting appropriate CBI goals (Test et al., 2017):

1. What is the expectation for ultimate independent functioning in the community?

2. What will the student be expected to do in their next environment (e.g., the next grade level)?
3. What is the student expected to do in their current environment (e.g., grade-level academic standards or individualized education program [IEP] goals)?
4. What are the consequences if the student does not demonstrate this skill?
5. What skills are age appropriate?
6. What skills or knowledge will help a student be successful immediately after high school?

When considering ultimate functioning, educators reflect on the skills that are needed for living as an adult. For example, if adults are unable to locate an item when shopping in the community, they use a variety of problem-solving skills to find the item (e.g., reading aisle signs, using knowledge of where similar items are located, asking for assistance). However, students will often need to develop prerequisite skills in order to work toward the goal of ultimate functioning. Therefore, it is also helpful to consider expectations for the student in their next environment. For example, perhaps 11th-grade students are expected to participate in a 2-day-a-week internship at a convenience store. A 10th-grade teacher might consider what skills their students will need to be successful in those internships in the following year. CBI goals can also be identified by considering expectations in the current environment; such expectations may include the state's grade-level or alternate learning standards (e.g., Common Core Learning Standards) and students' IEP annual goals (Konrad et al., 2014). For example, working on a student's social skills goal while in the community may support the student in generalizing their skills to new settings.

Considering current and future expectations may support educators in identifying several appropriate goals for CBI. However, educators may find it difficult to decide which skill(s) to focus on first. Reflecting on the functionality and potential consequences if the student does not learn each skill may help educators prioritize skills for instruction. For example, when riding a public bus, requesting a stop and riding safely (i.e., seated or holding on to the handrail) are both important skills.

Explicitly defining CBI goals is crucial because this supports educators in the accurate collection of data and later decision making during the progress-monitoring process.

However, staying seated or holding on to the handrail functions to keep a student safe and may therefore be prioritized. Similarly, educators may consider age-appropriate behavior when identifying instructional targets. For example, it may be age appropriate for a 5-year-old to hold an adult's hand while walking through a store, but high schoolers are unlikely to hold a teacher's hand. Finally, it is important to consider a student's postsecondary plans, after they complete high school. Although this may be related to considerations of ultimate functioning or the next environment for some high school students, for other students, this period of time may involve distinct skills. For example, living in a dorm on a college campus requires different skills than living independently in an apartment in the community.

After identifying an appropriate instructional goal for CBI, educators will find it helpful to operationalize the goal by describing the targeted skills or behavior, the conditions under which that behavior is expected to occur, and how to determine if the student has mastered the instructional target. Clearly defined CBI goals often focus on (a) increasing the frequency of a specific behavior (e.g., number of times a student responds when greeted), (b) increasing the accuracy or independence of a sequence of behaviors (e.g., bagging groceries independently), or (c) increasing the duration of a specific behavior (e.g., appropriately pushing a shopping cart). The SMART mnemonic can support educators in clearly articulating goals for instruction in the community (Hedin & DeSpain, 2018). SMART goals are those that are specific, measurable, attainable, relevant, and timely. Targeted behaviors or skills should be specifically described so that anyone using a progress-monitoring tool is able to consistently determine if the behavior occurred. When considering how to measure a student's skill level, it is important to establish a criterion level that demonstrates mastery, including desired accuracy, level of independence, and frequency or duration of the targeted skill or behavior. Finally, educators may begin considering how long they think it will take the student to attain the goal, which will inform decision making during the progress-monitoring process (see Step 4). Explicitly defining CBI goals is crucial because this supports educators in the accurate collection of data and later decision making during the progress-monitoring process.

Mr. Lopez starts by thinking about ultimate functioning in a store and the problem-solving skills necessary to find items on a list. He also notes that one of Sandra's annual IEP goals is focused on initiating a request for help. She has a postsecondary goal of working in a retail store after high school, and she will be participating in a supported internship in a corner store during the next school year. Mr. Lopez knows that one of Sandra's responsibilities in a retail setting will be to stock items, which will require her to work with other store employees to locate items in the store. To support Sandra's success in these environments and her progress toward IEP and postsecondary goals, Mr. Lopez establishes the following CBI goal: "While Sandra is shopping in a store in the community and given a list of items, Sandra will independently ask store employees for help locating and selecting items in 90% of opportunities, for two consecutive sessions." Mr. Lopez defines "asking store employees for help" as involving five steps, in the context of the current CBI experience: (1) greeting a store employee, (2) asking the employee where an item from the shopping list is located, (3) locating the item, (4) asking a store employee for the best deal on the item, and (5) thanking the employee for their

Figure 1 **Online progress monitoring tools for community-based instruction**

Name and Website	Description	Data Collection Methods	Examples	Cost
Behavior Tracker Pro (a)	Graphs can be customized to indicate different phases/ interventions and can be emailed to parents or IEP team members.	Frequency Duration Antecedent Behavior Consequence (ABC)	Duration: Total amount of time a student is appropriately seated on the bus.	$29.99 one time
Behavior Observation Made Easy (a) (b)	Allows for collection of frequency, duration, and time sampling data. Results can be exported as CSV file, table, or bar graph.	Frequency Duration Time sampling	Frequency: Number of times a student identifies a "walk" sign correctly.	$13.99 one time (Apple) $9.99 one time (Google Play)
Birdhouse (c)	Lite (free) version offers IEP documentation and communication logs. Premium version includes graphing and reporting, file uploads, and student schedules.	ABC Data	ABC: Antecedents occurring prior to an outburst (e.g., asked to put back an item), Behavior during the outburst (e.g., yelling), and Consequences (e.g., reminded of appropriate behavior in the store)	$8.99/month
Google Forms (c)	All-purpose online form can be customized to record a range of behaviors and automatically provides data sheets and reports for review.	Frequency Duration ABC data Chained Behaviors (1)	Chained Behavior: The number of steps demonstrated out of the total number of steps required by a hospital to clean a patient's room.	Free
Insight: Observation Timer (a)	Customizable behavior recording tool focused on time sampling recording.	Time sampling	Time sampling: Number of time intervals during which the student was engaged in on-task behavior during a 10-minute observation.	Free

(a) Available for Apple iOS. (b) Available through Google Play. (c) Available online. Cost as of August 2020. (1) For chained behaviors, the Google Form can include a "matrix grid" with each step of the chain representing a row and columns representing whether or not the behavior was demonstrated. Each column can also represent a prompting level.

assistance. Mr. Lopez discusses this goal with Sandra, and she agrees that she would like to become more comfortable approaching store employees for help when she is not able to find items at the store.

Step 2: Decide on Progress-Monitoring Tools

In school settings, educators collect data on students' progress toward goals using a range of assessment approaches, including curriculum-based measures, informal classroom assessments, performance assessment, interviews, or direct observation of students' behaviors

(McLeskey et al., 2017; Sitlington & Clark, 2007). However, during CBI, educators are most likely to rely on direct observation to collect progress-monitoring data on students' learning. Therefore, educators must decide on the tool that will allow them to most accurately and efficiently collect data on students' responses in the community.

The tool that is most appropriate will depend on the identified instructional goal and must capture the intended dimension(s) of the targeted behavior (i.e., frequency, accuracy, independence, or duration of the behavior). There are many resources that provide educators with examples of data collection forms or progress-monitoring tools. For example, Golden (2018) and the Progress Monitoring Toolkit developed by the National Technical Assistance Center on Transition (2018) offer data collection and progress-monitoring templates that can be copied or adapted for use in CBI contexts. In addition to paper templates and forms, technology tools can support educators in the collection and analysis of data (Mandinach, 2012). For example, an increasing number of apps allow educators to log the frequency or duration of a behavior, and online forms can be created to track students' accuracy or independence on a sequence of behaviors (e.g., Google Forms; Scheef & Johnson, 2017). With the rapid advancement of technology, these tools are continually updated; ***Figure 1*** offers examples of several progress-monitoring apps or tools currently available to educators. If using Google Forms or other online survey tools, drop-downs and check-mark boxes can make the data collection process less labor intensive. Contextual information necessary for data-driven instructional decisions (see Step 4) can also be collected within the progress-monitoring tool. Given their increasing prevalence, smartphones and other handheld devices also offer an unobtrusive option for data collection.

On the basis of Sandra's goal, Mr. Lopez creates a Google Form that lists each step with the option to select "yes" if Sandra completes the step independently and "no" if Sandra does not complete the step or requires prompting. He also includes a "not applicable" option in case Sandra is unable to complete a step due to circumstances outside of her control (e.g., there is no one available to ask about the best deal on an item).

It is important for educators to collect data frequently so that they can make timely decisions regarding the effectiveness of their instructional approaches.

The person collecting data will load the Google Form on their smartphone and select the appropriate response for each step of the behavior. If Sandra completes these steps for multiple items, the data collector will simply submit the form for the first item and reload the form to submit a new response for the second item and so on. Responses will be automatically dated and recorded in Google Sheets, making it easy for Mr. Lopez to access and analyze Sandra's data at a later point in time.

Step 3: Collect Data

Along with deciding on an appropriate progress-monitoring tool, educators must make decisions about who will collect data and when data collection will occur. Ongoing data collection and data analysis are essential for data-driven decision making and progress monitoring (McLeskey et al., 2017). Given the individualized nature of many CBI goals and the attention required to accurately record observational data, it is unlikely that one teacher will be able to collect data for all students simultaneously. Therefore, it is important for educators to thoughtfully plan how data collection will take place during CBI (Test et al., 2017). Educators may find it helpful to train support staff, such as paraprofessionals, to assist with observing and recording student behavior (Carter et al., 2009). Specifically, research indicates training that includes modeling and performance feedback has the strongest effect on educators' use of a targeted instructional strategy (Brock & Carter, 2017), suggesting that these training approaches could also effectively support the development of educators' data collection skills.

In addition to identifying who will collect data and ensuring they are appropriately trained to do so accurately, it is important to determine how often data will be collected (Test et al., 2017). Ideally, data should be collected at least once during every instructional session, although this does not mean that data need to be collected on every student response during that session (Test et al., 2017). However, evidence from progress-monitoring research on academic skills suggests that more frequent data collection allows educators to identify trends in data with greater precision, which may support more effective instructional decision making (January et al., 2019). In other words, it is important for educators to collect data frequently so that they can make timely decisions regarding the effectiveness of their instructional approaches. In some cases, it may be possible to collect multiple data points in a single session; for example, when collecting data on sequence of behaviors (e.g., safely crossing the street), an educator may count each opportunity to complete that behavior sequence as a data point (e.g., the student crosses three streets during a walk to the store, and student performance is recorded as three data points).

Regardless of how many data points are collected per session (i.e., one or multiple), data collection will initially include the collection of multiple data points for baseline. The purpose of the baseline phase is to accurately measure the student's initial performance level when under typical instructional conditions (Horner et al., 2005). In doing so, educators can gather information on the extent to which a student demonstrates a target behavior during "treatment as usual" conditions (Horner et al., 2005), such as student performance without any additional prompting. This is important because without a baseline, it is difficult to measure if the student is making progress toward the targeted goal. Additionally, lack of baseline data can make it difficult to make decisions about whether instructional approaches need to be changed (Horner et al., 2005). Although

not all situations make baseline data collection practical or ethical (Marx & Miller, 2020), baseline data collection provides educators with helpful information about the effectiveness of current instructional practices.

Because the class engages in CBI at the store only once per week, Mr. Lopez decides that data need to be collected during every visit. Mr. Lopez knows that he will not be able to consistently collect data on Sandra's responses while at the store, so he decides to train Ms. Schmidt, a paraprofessional who accompanies the class during CBI, to collect data. Mr. Lopez meets with Ms. Schmidt and shows her how to load the Google Form onto her smartphone. They talk through the five steps of the target behavior, describing examples and nonexamples of each step, with Mr. Lopez modeling how he would record each example or nonexample of behavior. Once it seems that Ms. Schmidt has a strong understanding of how each step is defined, Mr. Lopez acts out various scenarios that could occur at the store while Ms. Schmidt takes data. During this process, Mr. Lopez provides feedback to Ms. Schmidt on her accuracy in recording each response. Finally, over the next week, Mr. Lopez makes time to observe at least two of Sandra's interactions at the store, taking data at the same time as Ms. Schmidt. They compare their data, and Mr. Lopez provides any corrective feedback. The data points from this week will also serve as baseline data on Sandra's initial performance.

Step 4: Data-Driven Decision Making

The purpose of analyzing progress-monitoring data is to make proactive decisions about how current instructional methods in the community can be modified, supplemented, or replaced with alternative, evidenced-based practices to better support a student in reaching a specific instructional goal (Mandinach, 2012). This process is called data-driven decision making and involves ongoing review of data with the goal of identifying patterns in how a student has demonstrated a skill over multiple CBI sessions. Data-driven decision making for CBI can be summarized into six core steps:

1. Establish performance criteria for data analysis.
2. Review student performance and contextual information for factors potentially influencing their performance for each individual session.
3. Review data across sessions to identify patterns in student performance and the potential influence of contextual factors on their performance.
4. Modify, supplement, or replace current instructional strategies based upon the data.
5. Continue data collection to evaluate the impact of changes to instruction on student progress according to the performance criteria.

Establishing performance criteria. Having one criterion or several criteria to guide the analysis of progress-monitoring data can support educators in consistent and accurate decisions about student performance (Browder et al., 2011). This may include establishing minimum criteria for student progress over a set time interval (sessions, days, weeks) that, if not met, signal the need for changes to instruction (Browder et al., 2011; Jimenez et al., 2012). Performance criteria should specify an increase in skill level (frequency, number of steps, duration) and the time in which that increase should occur (days, weeks, etc.). Within the context of CBI, minimum criteria for overall goal mastery could be deciding that a percentage of the total steps in a skill sequence, or a specific frequency of occurrences, must be demonstrated for a set number of sessions consecutively (e.g., four of five opportunities over two consecutive sessions). However, educators may often need to document student growth that is more incremental. To accomplish this, educators can establish criteria for several levels of performance prior to "mastery." Preceding levels may include "primer," "emerging," and "proficient," with each level representing an incremental increase in the demonstration of a target behavior, for an increasing number of sessions. A rubric defining each level and its corresponding criteria can be used as a guide for identifying performance levels based upon data collected during CBI. Additionally, the rubric should specify a "rule" for when and how changes to instruction occur if the student is not progressing to higher levels of performance. The rule should specify the number sessions or occurrences required before a change is made. Actions assigned to each performance level on the rubric should be consistent with the level of student performance. For example, mastery may be associated with the data-driven decision to provide opportunities for the student to generalize the skill to new situations or contexts. In contrast, a student remaining at primer or emerging level for many sessions may signal the need to implement an alternative instructional approach or modify the current approach.

Before Mr. Lopez begins collecting and reviewing data on Sandra's performance at the store, he creates a rubric with four levels of performance and criteria for meeting them. Mr. Lopez's rubric includes primer level (zero to two steps completed accurately for two or more sessions), emerging (three to four steps in correct order for two or more consecutive sessions), proficient (all five steps in correct order for one or more session, with prompting), and mastery (all five steps in correct order for two or more consecutive sessions, without prompting). Mr. Lopez then sets a rule for the team that within a least-to-most prompting system, prompts will be increased if performance level does not increase after two demonstrations of the target behavior. He recognizes that if team members are using the highest level of prompting and Sandra remains at primer, then other instructional methods might be required. In setting these time frames, Mr. Lopez considers that there is only one CBI session per week. He decides that when possible, the team will try not to wait more than 2 weeks (two sessions) or two demonstrations during a session to adjust the prompting level being used based upon the performance criteria.

Reviewing data and making instructional decisions. In order to make instructional decisions based upon progress-monitoring data, educators should review results as close to real time as possible. Within the context of multistep skills, this could include reviewing performance data after one or more demonstrations during a CBI session or after each session, before the next occurs. This supports the potential for instruction to be changed before the next demonstration occurs. When reviewing data on chained behaviors, educators should first identify the percentage of the total number of steps that were completed during each demonstration. The number of steps is then compared with the performance criteria on the rubric, and the

Figure 2 **Data sheet of Sandra's target behavior**

Session	Opportunity	Greeted and introduced herself to a store employee	Asked the store employee which aisle the item can be found	Find the item in the asile	Find a store employee and ask them which brand of the item is the best price for quantity of the item desired	Thank the store employee for their assistance	Total Steps	Least-Most Prompts	Performance Level
Session 1 (Baseline)	1	No	No	No	No	No	0	None	Primer (0-2 steps)
Session 1 (Baseline)	2	No	No	No	No	No	0	None	Primer (0-2 steps)
Session 2	1	No	Yes	No	No	No	2	Gesture	Primer (0-2 steps)
Session 2	2	Yes	No	No	No	No	2	Gesture	Primer (0-2 steps)
Session 2	3	Yes	Yes	No	No	No	2	Gesture & Indirect Verbal Cues	Primer (0-2 steps)
Session 3	1	No	Yes	No	No	No	1	Gesture & Indirect Verbal Cues	Primer (0-2 steps)
Session 3	2	Yes	Yes	No	No	No	2	Direct Verbal Cues	Primer (0-2 steps)
Session 3	3	No	Yes	Yes	No	No	2	Direct Verbal Cues	Primer (0-2 steps)
Session 4	1	Yes	Yes	Yes	No	No	3	Direct Modeling	Emerging (3-4 in order)
Session 4	2	Yes	Yes	Yes	Yes	Yes	5	Direct Modeling	Proficient (5 in order)
Session 5	1	Yes	Yes	Yes	Yes	Yes	5	Direct Modeling	Proficient (5 in order)
Session 5	2	Yes	Yes	Yes	Yes	Yes	5	None	Mastery
Session 5	3	Yes	Yes	Yes	Yes	Yes	5	None	Mastery
Session 6	1	Yes	Yes	Yes	Yes	Yes	5	None	Mastery
Session 6	2	Yes	Yes	Yes	Yes	Yes	5	None	Mastery

Educators may find it beneficial to take an incremental approach to instructional changes based upon data, which can help them to parse out the potential impact of different factors on student performance.

relevant performance level is assigned to the demonstration. If there are errors in performance (e.g., not all steps completed or in an incorrect sequence), discrepancy analysis should be used. This approach involves reviewing contextual information for each CBI session in order to gain better understanding of the factors potentially contributing to the student's current performance level (Keohane & Greer, 2005). This includes information on (a) the specific instructional approach or interventions that were used, (b) which staff were providing instruction, (c) the environmental or situational conditions present during opportunities for demonstrating the target behavior, (d) accommodations or modifications that were provided, and (e) the student's current physical and cognitive abilities. Once there have been three or more occurrences of the behavior, educators should review the performance level across all demonstrations and identify if it is increasing, decreasing, unchanged, or variable (e.g., increase→ decrease→ increase→ decrease). Educators can also calculate the average number of steps demonstrated for each instructional method used during the session or between two sessions. This is one way to see if performance is higher when one particular strategy is used, which may inform the use of one method over others when contextual data also suggest similar circumstances at the time of occurrence. The preestablished performance criteria are then used to decide, based upon the data, which instructional decisions should be made to improve student performance (Browder et al., 2011; Keohane & Greer, 2005).

Educators may find it beneficial to take an incremental approach to instructional changes based upon data, which can help them to parse out the potential impact of different factors on student performance. As shown in ***Figure 2***, conditional formatting in Google Sheets (top menu → "Format" → Conditional Formatting) can be used to automatically select and color code instances where there is a "no" for the target behavior, leading to the creation of clear visual representations of trends within and across CBI sessions. If a student's performance still does not improve after several sessions with modifications to the instructional approach or additional training to staff, the educator may make a data-driven decision to implement additional instructional methods or to change interventions entirely. Examples of evidence-based approaches that may be especially relevant to CBI include total task chaining, constant time delay, and computer-based video instruction (Test et al., 2017). If the focus of CBI is to acquire employment skills, in addition to these evidence-based practices, educators may decide to implement modeling (video or live), time-delay approaches (constant, progressive), simulations, performance feedback, or reinforcement contingencies (Gilson et al., 2017).

After the first CBI session (baseline), Mr. Lopez reviews Sandra's data in his Google Sheet created automatically by the Google Form. There were two opportunities for Sandra to demonstrate the target behavior, and she did not demonstrate any of the five required steps in the behavior chain, as evidenced by a "no" in each column representing each step. Mr. Lopez marks down "primer" level under the column "Performance Level" in the row corresponding to each demonstration (see ***Figure 2****). Based upon these results, he makes an instructional decision to introduce a prompting hierarchy to support Sandra's progress. The following week, Mr. Lopez reviews Sandra's data in real time. He keeps his tablet and the live, updating spreadsheet of Sandra's data (linked to the Google Form that Ms. Schmidt is using) with him as he works with other students throughout the store. During the session, there are three opportunities to demonstrate the target behavior. In reviewing the data, Mr. Lopez identifies Sandra's performance level as primer, with Steps 1 or 2 demonstrated for the first and second occurrence and both steps for the third occurrence. The following week, Sandra remains at primer level, with one or two steps demonstrated for each occurrence. During this time, on the basis of the performance criteria, the prompting level is increased to both gestures and indirect verbal cues. During the next two sessions, Sandra remains at primer level, which meets Mr. Lopez's rubric criteria for changes to instruction based on no change in performance, and as a result, he increases prompting to direct verbal cues. Mr. Lopez reviews the data again after the next two occurrences with direct verbal cues and identifies Sandra's performance level as remaining at primer level.*

Mr. Lopez reviews field notes by Ms. Schmidt and his own notes in order to identify potential contextual reasons why Sandra is not making progress past the primer level. Contextual data suggest that performance is influenced by inconsistent implementation of the prompting hierarchy and one store employee's unwillingness to engage with Sandra's questions. On the basis of these data, Mr. Lopez makes the decision to provide school support staff with additional training to implement all levels of the prompting hierarchy effectively. He also speaks with Sandra about asking other store employees when she tries to complete her task. After these changes, he then increases the prompting level to direct modeling given that performance did not increase for the past two occurrences. This results in Sandra demonstrating emerging-level performance, with three steps completed in the correct sequence. After two additional occurrences with direct modeling, he notes that Sandra's performance level is proficient according to the rubric. He also notes that performance is stable because there wasn't any drop in performance (the number of steps demonstrated) between occurrences and sessions. At this time, Mr. Lopez identifies Sandra as having demonstrated mastery-level performance, which Sandra maintains for two sessions after prompting is removed. Therefore, Mr. Lopez determines that Sandra has mastered these skills and decides that a new CBI goal for Sandra should be identified.

Conclusion

Over the past several decades, researchers have investigated classroom-based

approaches educators can use to make data-driven decisions about instructional practices for students with disabilities (Browder et al., 2011; Jimenez et al., 2012). Although special educators commonly report implementing CBI, many report receiving little training on data-driven decision making to determine if they are implementing such practices effectively (Mazzotti & Plotner, 2016). The steps outlined in this article describe how educators can apply research-based approaches to progress monitoring that take into consideration the instructional methods, behaviors, situational factors, and informal assessment methods that are unique to community-based instruction. As a systematic approach to collect data on student performance and learning while in the community, progress monitoring during CBI can provide important insights into students' learning as students prepare to be contributing citizens in their communities.

DECLARATION OF CONFLICTING INTERESTS

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

FUNDING

The author(s) received no financial support for the research, authorship, and/or publication of this article.

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REFERENCES

Alsbury, T. L., Kobashigawa, S., & Ewart, M. (2020). Community-based learning and student outcomes. In E. Kimonen & R. Nevalainen (Eds.), *Toward community-based learning* (pp. 124–145). Koninklijke Brill NV. https://doi.org/10.1163/9789004424494_003

Barczak, M. A. (2019). Simulated and community-based instruction: Teaching students with intellectual and developmental disabilities to make financial transactions. *TEACHING Exceptional Children*, *51*(4), 313–321. https://doi.org/10.1177%2F0040059919826035

Bassette, L. A., Taber-Doughty, T., Gama, R. I., Alberto, P., Yakubova, G., & Cihak, D. (2018). The use of cell phones to address safety skills for students with a moderate ID in community-based settings. *Focus on Autism and Other Developmental Disabilities*, *33*(2), 100–110. https://doi.org/10.1177%2F1088357616667590

Brock, M. E., & Carter, E. W. (2017). A meta-analysis of educator training to improve implementation of interventions for students with disabilities. *Remedial and Special Education*, *38*(3), 131–144. https://doi.org/10.1177%2F0741932516653477

Browder, D. M., Spooner, F. H., & Jimenez, B. (2011). Standards-based individualized education plans and progress monitoring. In D. M. Browder & F. Spooner (Eds.), *Teaching students with moderate and severe disabilities* (pp. 42–91). Guilford Press.

Carter, E., O'Rourke, L., Sisco, L. G., & Pelsue, D. (2009). Knowledge, responsibilities, and training needs of paraprofessionals in elementary and secondary schools. *Remedial and Special Education*, *30*(6), 344–359. https://doi.org/10.1177%2F0741932508324399

Filderman, M. J., Austin, C. R., & Toste, J. R. (2019). Data-based decision making for struggling readers in the secondary grades. *Intervention in School and Clinic*, *5*(1), 3–12. https://doi.org/10.1177%2F1053451219832991

Gil, V., Bennett, K. D., & Barbetta, P. M. (2019). Teaching young adults with intellectual disability grocery shopping skills in a community setting using least-to-most prompting. *Behavior Analysis in Practice*, *12*(3), 649–653. https://doi.org/10.1007/s40617-019-00340-x

Gilson, C. B., Carter, E. W., & Biggs, E. E. (2017). Systematic review of instructional methods to teach employment skills to secondary students with intellectual and developmental disabilities. *Research and Practice for Persons with Severe Disabilities*, *42*(2), 89–107. https://doi.org/10.1177%2F1540796917698831

Golden, C. (2018). *The data collection toolkit: Everything you need to organize, manage, and monitor classroom data*. Brookes.

Hedin, L., & DeSpain, S. (2018). SMART or not? Writing specific, measurable IEP goals. *TEACHING Exceptional Children*, *51*(2), 100–110. https://doi.org/10.1177%2F0040059918802587

Hoover, A. (2016). The role of the community in transition to the adult world for students with disabilities. *American Secondary Education*, *44*(2), 21–30.

Horner, R. H., Carr, E. G., Halle, J., McGee, G., Odom, S., & Wolery, M. (2005). The use of single-subject research to identify evidence-based practice in special education. *Exceptional Children*, *71*(2), 165–179. https://doi.org/10.1177%2F001440290507100203

Individuals With Disabilities Education Act, 20 U.S.C. §§ 1400 *et seq*. (2004).

January, S. A. A., Van Norman, E. R., Christ, T. J., Ardoin, S. P., Eckert, T. L., & White, M. J. (2019). Evaluation of schedule frequency and density when monitoring progress with curriculum-based measurement. *School Psychology*, *34*(1), *119*. http://doi.org/10.1037/spq0000274

Jimenez, B., Mims, P. J., & Browder, D. M. (2012). Data-based decisions guidelines for teachers of students with severe intellectual and developmental disability. *Education and Training in Autism and Developmental Disabilities*, *47*(4), 407–413. https://www.jstor.org/stable/23879634

Keohane, D. D., & Greer, R. D. (2005). Teachers' use of a verbally governed algorithm and student learning. *International Journal of Behavioral Consultation and Therapy*, *1*(3), 252–271. http://doi.org/10.1037/h0100749

Konrad, M., Keesey, S., Ressa, V. A., Alexeeff, M., Chan, P. E., & Peters, M. T. (2014). Setting clear learning targets to guide instruction for all students. *Intervention in School and Clinic*, *50*(2), 76–85. https://doi.org/10.1177%2F1053451214536042

Mandinach, E. B. (2012). A perfect time for data use: Using data driven decision making to inform practice. *Educational Psychologist*, *47*(2), 71–85. https://doi.org/10.1080/00461520.2012.667064

Marx, T. A., & Miller, F. G. (2020). *Strategies for setting data-driven behavioral individualized education program goals*. National Center on Intensive Intervention at American Institutes for Research. https://intensiveintervention.org/resource/high-quality-behavior-IEP-goals

Mazzotti, V. L., & Plotner, A. J. (2016). Implementing secondary transition evidence-based practices: A multi-state survey of transition service providers. *Career Development and Transition for Exceptional Individuals*, *39*(1), 12–22. https://doi.org/10.1177%2F2165143414544360

McLeskey, J., Barringer, M-D., Billingsley, B., Brownell, M., Jackson, D., Kennedy, M., Lewis, T., Maheady, L., Rodriguez, J., Scheeler, M. C., Winn, J., & Ziegler, D. (2017). *High-leverage practices in special education*. Council for Exceptional Children & CEEDAR Center.

National Technical Assistance Center on Transition. (2018). *Monitoring student progress for transition: A toolkit for collecting student level transition-related data*. https://www.transitionta.org/system/files/toolkitdcs/Student%20Progress%20Monitoring%20Toolkit_FINAL_March2019.pdf

Rowe, D. A., Alverson, C. Y., Unruh, D. K., Fowler, C. H., Kellems, R., & Test, D. W. (2015). A Delphi study to operationalize evidence-based predictors in secondary transition. *Career Development and Transition for Exceptional Individuals*, *38*(2), 113–126. https://doi.org/10.1177%2F2165143414526429

Scheef, A. R., & Johnson, C. (2017). The power of the cloud: Google forms for transition assessment. *Career Development and Transition for Exceptional Individuals*, *40*(2), 250–255. https://doi.org/10.1177%2F2165143417700844

Sitlington, P. L., & Clark, G. M. (2007). The transition assessment process and IDEIA 2004. *Assessment for Effective Intervention*,

32(3), 133–142. https://doi.org/10.1177/154508407032030201

Stecker, P. M., Fuchs, L. S., & Fuchs, D. (2005). Using curriculum-based measurement to improve student achievement: Review of research. *Psychology in the Schools*, *42*(8), 795–819. https://doi.org/10.1002/pits.20113

Test, D. W., Mazzotti, V., Mustian, A. L., Fowler, C. H., Kortering, L., & Kohler, P. (2009). Evidence-based secondary transition predictors for improving post-school outcomes for students with disabilities. *Career Development for Exceptional Individuals*, *32*, 160–181. https://doi.org/10.1177%2F0885728809346960

Test, D. W., Spooner, F., Holzberg, D., Robertson, C., & Davis, L. L. (2017). Planning for other educational needs and community-based instruction. In M. A. Wehmeyer & K. A. Shogren (Eds.), *Handbook of research-based practices for educating students with intellectual disability* (pp. 130–150). Routledge.

Walker, A. R., Uphold, N. M., Richter, S., & Test, D. W. (2010). Review of the literature on community-based instruction across grade levels. *Education and Training in Autism and Developmental Disabilities*, *45*(2), 242–267. https://www.jstor.org/stable/23879810

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