An Evaluation of a Self-Instructional Manual for Teaching Individuals How to Administer the Revised ABLA Test

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Abstract: The Assessment of Basic Learning Abilities (ABLA) is a tool that is used to assess the learning ability of individuals with intellectual disability (ID) and children with autism. The ABLA was recently revised and is now referred to as the ABLA-Revised (ABLA-R). A self-instructional manual was prepared to teach individuals how to administer the ABLA-R (DeWiele, Martin, Martin, Yu, & Thomson, 2011). Using a modified multiple-baseline design across a pair of university students, and replicated across four pairs, we evaluated the effectiveness of the ABLA-R self-instructional manual for teaching the students how to administer the ABLA-R. Each student: (a) after examining a brief description of the ABLA-R, attempted to administer the ABLA-R to a confederate role-playing an individual with ID (Baseline); (b) studied the ABLA-R self-instructional manual (Training); and (c) re-attempted to administer the ABLA-R to a confederate (Post-Training Assessment). Participants who achieved at least 90% accuracy in conducting the ABLA-R in their Post-Training Assessment then administered the ABLA-R to an individual with ID in a Generalization Assessment. Although additional research is needed, our results suggest that the self-instructional manual is an effective tool for training individuals to accurately administer the ABLA-R.

The Assessment of Basic Learning Abilities (ABLA) is a valuable tool for matching the learning ability of individuals with intellectual disability (ID) and children with autism to the difficulty of training tasks. Kerr, Meyerson, and Flora (1977) observed that many individuals with ID were unable to perform relatively simple visual and auditory discriminations that appeared to be prerequisites for learning a variety of training tasks. Based on their observations, they developed the ABLA (originally called the AVC test) which consists of an attempt to teach an individual, using standardized prompting and reinforcement procedures, each of six tasks (called levels) until each task is either passed or failed (according to standardized criteria). The six tasks or levels include: (a) Level 1: a simple imitation; (b) Level 2: a two-choice position discrimination; (c) Level 3: a two-choice visual discrimination; (d) Level 4: a two-choice visual match-to-sample discrimination; (e) Level 5: a two-choice auditory discrimination; and (f) Level 6: a two-choice auditory-visual combined discrimination. Although research has indicated that an individual’s pass/fail performance on the ABLA is very useful for matching the learning ability of the individual to the difficulty of training tasks (Martin, Thorsteinsson, Yu, Martin, & Vause, 2008), research has also indicated that the majority of individuals who pass Level 5 also pass Level 6 (Martin & Yu, 2000). Thus, Level 5 generally does not provide unique information about an individual’s learning ability beyond that obtained by the testing of Level 6. Sakko, Martin, Vause, and Martin (2004) found that a two-choice visual-visual non-identity matching (VVNM) discrimination task was a suitable replacement for the original Level.
A Summary of the ABLA Testing Procedure, and of Research on the ABLA

A common standardized prompting and reinforcement procedure is followed to assess a client on each ABLA level. At the start of testing the test task for a level such as Level 2 (see Table 1), the tester first conducts a demonstration of the correct response, followed by a guided trial (where the tester helps the testee accomplish the task), and then a trial where the testee has a chance to perform the task independently. Once the testee has independently responded correctly on that level, testing trials for that level begin. On each trial, the tester gives the manipulandum (such as the piece of foam for Level 2) to the testee, and then uses a simple verbal instruction, such as “Where does it go?” After a correct independent response on a test trial, the tester praises the testee and gives the testee a preferred edible. After an incorrect response, the tester says, “No, that’s not where it goes,” or some variation of that phrase, and once again performs a demonstration of the response, a prompted trial, and then gives the testee a chance to response independently. On test trials for a level, testing continues until the testee achieves eight consecutive correct responses, which defines a pass. The fail criterion for a level is eight cumulative errors, including errors on an independent response as part of an error correction.

Research has consistently demonstrated a number of basic findings concerning the original ABLA. First, the six tasks in the ABLA progressively increase in difficulty from Levels 1 to 6, so that if a testee fails a certain level (e.g., Level 4), he/she will not likely pass higher levels (e.g., Levels 5 and 6) at that time. A number of studies (as reviewed by Vause, Yu, & Martin, 2007) have demonstrated the hierarchical difficulty of the ABLA levels with children and adults with ID, children with autism, and typically developing children. Second, the ABLA has been shown to have high test-retest and inter-tester reliability with persons with ID (Martin, Yu, Quinn, & Patterson, 1983). Third, the performance of individuals with ID (Martin et al., 2008) and children with autism (Murphy, Martin, & Yu, 2014; Schwartzman et al., 2009; Viel et al., 2011) on the ABLA has high predictive validity for the ease or difficulty with which those individuals learn a variety of training tasks. The usefulness of an individual’s ABLA test performance to predict that person’s ability to learn specific types of tasks has been very beneficial for service providers in selecting training tasks that are of an appropriate difficulty for their students. Fourth, presenting an individual with ID with a task that is not matched to his/her highest-passed ABLA level has been associated with a higher percentage of aberrant behaviors than selecting a task matched to the individual’s highest-passed level (Vause, Martin, & Yu, 1999; Vause et al., 2000). Also, practitioners who are unfamiliar with the ABLA level of persons with ID often mismatch a person’s ABLA level compared to the ABLA difficulty of training tasks presented (De Wiele & Martin, 1996; Vause et al., 2000). Fifth, considering that ABLA Levels 1 to 4 involve visual discriminations while the original ABLA Levels 5 and 6 involve auditory discriminations, researchers have found that children and adults with ID and typically developing children who pass Level 4 and fail Levels 5 and 6 are more likely to show compliance to instructions accompanied by gestures or modeling than to instructions alone, while participants who passed Level 6 are equally likely to show compliance to instructions alone as compared to instructions with gestures or modeling (Force & Feldman, 2000; Hiebert, Martin, Yu, Thorsteinsson, & Martin, 2009). Thus, knowing an individual’s ABLA level can help with selecting an effective instructional strategy to increase the amount of cooperation on behalf of the student.

Level 5 of the original ABLA was intended to test an easier type of auditory discrimination than Level 6. When testing the original Level 5 a client is presented with a yellow can and a red box in fixed left-right positions. Across trials the client is required to place a
<table>
<thead>
<tr>
<th>Level</th>
<th>Test Task</th>
<th>Everyday Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level 1</td>
<td>When given a piece of foam, can the student imitate the teacher placing the foam into a container?</td>
<td>- Children playing Follow-the-Leader.</td>
</tr>
<tr>
<td>Imitation*</td>
<td></td>
<td>- Rolling a ball from one person to the other.</td>
</tr>
<tr>
<td>Level 2</td>
<td>When presented with a yellow can and a red box in a stable position, can a student consistently place a piece of foam into the container on the left?</td>
<td>- Turning on the cold (vs. the hot) water tap.</td>
</tr>
<tr>
<td>Position Discrimination</td>
<td></td>
<td>- Placing a fork on the left side of a plate when setting a table.</td>
</tr>
<tr>
<td>Level 3</td>
<td>When presented with a yellow can and a red box in randomly alternated left-right positions, can a student consistently place a piece of foam into the can?</td>
<td>- Locating own printed name on the blackboard.</td>
</tr>
<tr>
<td>Visual Discrimination</td>
<td></td>
<td>- Finding a particular shirt in a closet when the location changes each time it is replaced.</td>
</tr>
<tr>
<td>Level 4</td>
<td>When presented with a yellow can and a red box in randomly alternated left-right positions, can a student consistently place a small yellow cylinder into the can, and a small red cube into the box?</td>
<td>- Sorting socks into pairs.</td>
</tr>
<tr>
<td>Visual Identity Match-to-Sample Discrimination</td>
<td></td>
<td>- Restocking a partially emptied salad bar.</td>
</tr>
<tr>
<td>Level 5</td>
<td>When presented with a yellow can and a red box in randomly alternated left-right positions, can a student consistently place a purple-colored piece of wood shaped like the word Can into the can, and a piece of silver-colored wood shaped like the word BOX into the box?</td>
<td>- Filling containers that are partly full.</td>
</tr>
<tr>
<td>Visual Non-Identity Match-to-Sample Discrimination</td>
<td></td>
<td>- Placing a cup with a saucer.</td>
</tr>
<tr>
<td>Level 6</td>
<td>When presented with a yellow can and a red box in randomly alternated left-right positions, can a student consistently place a piece of foam into the correct container when the teacher requests either “red box” or “yellow can”?</td>
<td>- Putting a pencil with a piece of paper.</td>
</tr>
<tr>
<td>Auditory-Visual Combined Discrimination</td>
<td></td>
<td>- Matching the printed word CAT to a picture of a cat.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Responding appropriately to the spoken words ‘Stop’ and ‘Go’.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Responding to requests such as ‘Stand up’ vs. ‘sit down’.</td>
</tr>
</tbody>
</table>

* Researchers (e.g., Stewart, McElwee, & Ming, 2010; Martin & Yu, 2010) have debated whether “Imitation” is the best label for Level 1. Kerr et al. (1977) considered the names of the ABLA levels to be useful when communicating with laypeople about the ABLA.
piece of foam in the appropriate container when the tester randomly says “red box” or “yellow can.” As can be seen in Table 1, Level 6 is the same as the original Level 5 except that for Level 6 the left-right position of the containers is randomly alternated across trials. Martin and Yu (2000) examined six studies testing a total of 197 participants, and found that 96% of participants who passed Level 5 also passed Level 6. Therefore, DeWiele and Martin (1998) proposed omitting Level 5 from the ABLA. Since that time the predictive validity studies of the ABLA (summarized previously) have been based on the original ABLA Levels 1, 2, 3, 4, and 6. Sakko et al. (2004) investigated a visual-visual nonidentity matching (VVNM) prototype task as a possible replacement for the original Level 5. As indicated in Table 1, the VVNM task requires participants to place either a silver-colored piece of wood that forms the word “BOX” into the red box, or a purple piece of wood forming the word “CAN” into the yellow can when asked by the tester, “Where does it go?” The left-right positions of the box and can, and the manipulandum given to the testee, are randomly alternated throughout trials. All other procedures are the same as the testing of Level 4 in the original ABLA test. After assessing 23 adult participants with ID, Sakko et al. (2004) found that the VVNM prototype task was more difficult than Level 4 (visual–visual identity matching), yet easier than Level 6 (auditory–visual discrimination). They also demonstrated that the VVNM prototype task had high predictive validity for other VVNM tasks, and high test–retest reliability one month after the original assessment. Hence, it appears that replacing the original Level 5 task with the VVNM prototype task could provide valuable additional insight into the learning abilities of individuals who pass Level 4 but not Level 6.

Learning How to Conduct the ABLA

The original description of the ABLA. Researchers and service providers who wanted to learn how to perform the ABLA initially used the original description of procedures published by Kerr et al. in 1977. However, the original description from the monograph issue of Rehabilitation Psychology was intended for viewing by researchers. It was not easily accessible to the average service provider, and some of the testing instructions were somewhat vague. In the description of test procedures, for example, the authors gave vague instructions such as, “Offer food intermittently (whatever it takes to keep child responding)” (p. 186), and, “Use whatever verbal explanation seems comfortable” (p. 186). Without the experience of observing the ABLA administered by a trained person, a direct-care staff member might find it difficult to replicate the verbal instructions as intended by the authors from reading the original description alone.

A self-instructional manual for the original ABLA. In response to the need for a method to train direct care service providers on how to conduct the ABLA, DeWiele and Martin (1998) prepared a self-instructional manual (SIM) designed to teach a reader how to assess a testee on ABLA Levels 1, 2, 3, 4, and 6 (see Table 1). As stated previously, they deleted the original Level 5. The manual, which was written at a Grade 8.8 reading level, contained an introduction to the ABLA, general instructions on administering the test, specific instructions on testing each level, study questions, and a section on classifying training tasks according to the levels of the ABLA. To evaluate the effectiveness of the SIM, researchers conducted two studies (DeWiele, Martin, & Garinger, 2000). In the first study, DeWiele et al. (2000) found that the SIM was significantly more effective than an information package for teaching undergraduate university students how to correctly administer the ABLA to a confederate role-playing an individual with ID. Based on the results of Study 1, DeWiele et al. (2000) tested the SIM with direct-care service providers in Study 2. In Study 2, participants spent an average of 5 hours and 55 minutes studying the manual and role-playing administering the ABLA to a partner. After achieving mastery (90%) on comprehension, speed, and task classification exams, participants each administered the ABLA to three individuals with ID. The average procedural accuracy with which participants conducted the ABLA was 82%, and on average, they accurately recorded data from test trials 84% of the time.

A revised self-instructional manual for the ABLA-R. As stated previously, the ABLA was recently revised with a VVNM prototype task replacing the original Level 5 (see Table 1), and there is now a revised version of the ABLA.
SIM titled, “The Assessment of Basic Learning Abilities, Revised Self-Instructional Manual,” or ABLA-R SIM (DeWiele et al., 2011). Part I of the revised manual begins with an introduction to the ABLA-R levels and how they relate to everyday tasks, followed by general guidelines including information on test materials, the testing environment, prompting, reinforcement, and error corrections. The ABLA-R SIM then goes on to describe, in detail, how to test each level of the ABLA-R, including the new Level 5, and how to avoid frequent errors that testers make. The new manual also includes revised and, presumably, improved score forms for each of the ABLA-R levels. Study questions and role-play exercises are interspersed throughout the manual to help readers master the material. Part II is devoted to teaching the reader how to classify training tasks (e.g., setting a table) according to the ABLA-R level required to complete them. The ABLA-R score forms and a summary of steps to follow are also part of the manual.

In the current study, we evaluated the effectiveness of the ABLA-R SIM for training university students to administer the ABLA-R with a confederate role-playing a person with ID. To assess whether the skills learned from the manual would generalize to a more natural scenario, participants who achieved a mean of at least 90% while testing the confederate in the Post-Training Assessment also assessed an adult with ID. Based on the evaluation of the original SIM of the ABLA (DeWiele et al., 2000), we predicted that accuracy in administering the ABLA-R SIM would increase from below 50% in Baseline to above 90% in the Post-Training Assessment for participants, and that all participants included in Generalization would maintain high accuracy when testing an individual with ID by scoring over 80% ABLA-R accuracy.

Method

Participants

The protocol for this study was approved by the University of Manitoba Psychology/Sociology Research Ethics Board, and the St. Amant Decision of Research Access Committee. St. Amant is a residential and treatment center for individuals with ID located in Winnipeg, Manitoba. Eight undergraduate university students were recruited from a behavior modification course at the University of Manitoba. Students were given the option to participate in the study in place of assigned practica that were to be completed throughout the semester, and that were worth 10% of the students’ grade. Full credit was given to the students, all of whom completed all phases of the study for which they qualified. Participants were told that if they achieved mastery in the Post-Training Assessment and participated in Generalization, they would receive a $40.00 honorarium. Students were strongly prompted that it was very important that they did not discuss the research with other students participating in the project.

The sample of student participants included two males and six females with a mean age of 28 years (range: 19–78 years), all of whom learned English as their first language. On average, the participants had attended university for 4 years (range: 3–5 years). Four participants had previously worked with or taken care of an individual with an ID; the nature of their experience included volunteering and working as a child/personal care assistant. None of the participants had ever been trained to administer the ABLA-R, nor had any participants previously encountered the ABLA-R in their work or volunteer experience.

We also recruited one adult with ID who received services from St. Amant. Given her diagnosis, consent was obtained from her legal guardian. The letter emphasized that declining to participate would not affect any services the individual was receiving from St. Amant or the University of Manitoba.

All sessions were conducted at St. Amant in a private, soundproof testing room with a table and chairs.

Materials

During the first phase (Baseline), participants received abbreviated instructions for administering the ABLA-R to individuals with ID. The students were given Table 1, excluding the everyday examples, and Table 2. The combination of Tables 1 and 2 made up the abbreviated instructions for administering the
### TABLE 2

<table>
<thead>
<tr>
<th>Levels</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Containers &amp; Left-Right Positions</td>
<td>Box only (till 4 correct Rs) Then can only</td>
<td>Box, Can Stable</td>
<td>Box, Can Randomly Alternate</td>
<td>Box, Can Randomly Alternate</td>
<td>Box, Can Randomly Alternate</td>
<td>Box, Can Randomly Alternate</td>
</tr>
<tr>
<td>Test Object Presented</td>
<td>Foam</td>
<td>Foam</td>
<td>Foam</td>
<td>Cube and Cylinder Randomly Alternate</td>
<td>BOX and Can Randomly Alternate</td>
<td>Foam</td>
</tr>
<tr>
<td>Correct Response</td>
<td>Imitates tester by placing foam in container</td>
<td>Place foam in can on right</td>
<td>Place foam in can independent of position</td>
<td>Place cube in box, or cylinder in can</td>
<td>Place BOX in box or Can in can</td>
<td>Place foam in the requested container</td>
</tr>
</tbody>
</table>

**Note.** When administering the ABLA test to a client, the tester attempts to teach a client to perform each task correctly, one task at a time, using standardized prompting and reinforcement procedures. When testing a task (level), test trials continue until either the pass or fail criterion is met, whichever comes first.

**Pass criterion:** Eight correct responses in a row on test trials that did not include extra prompts.

**Fail criterion:** Eight total errors (not necessarily in a row) on test trials that did not include extra prompts.

**When Assessing a Client on a Level**
1. Review the description of that level in Table 1.
2. Review the summary guidelines for testing that level as listed above.
3. Review the attached data sheet.
4. Conduct test trials until the pass criterion or fail criterion is met.
5. On each trial:
   a. Arrange the necessary materials.
   b. Present the correct test object.
   c. Present the correct verbal question.
   d. Once the client responds, provide what you consider to be an appropriate consequence for a correct or an incorrect response.
   e. Record the results of the trial.
   f. Following an incorrect response, conduct an error correction trial if you think it is necessary.
   g. Continue in this manner until a pass or fail criterion is met.
ABLA-R. The materials needed to conduct the ABLA-R test were also provided and, depending on the levels that were selected for the participant to assess, may have included: a red and white striped box and cube, a yellow can and cylinder, a piece of white foam, the word "BOX" cut out from cardboard and painted silver, and the word "CAN" cut out from cardboard and painted purple. The participants also received data sheets for recording the confederate’s responses during the ABLA-R. Edibles were provided for each participant to distribute to the confederate as a reinforcer for correct responses.

During the second phase (Training), the ABLA-R SIM, a highlighter, a pen, scrap paper, and photocopies of the Study Exercises in the manual were given to participants. All of the above-mentioned materials necessary to conduct the ABLA-R were available to the participant during Training (as the practice exercises in the manual required a participant to role-play levels of the ABLA-R), and for the Post-Training Assessment and Generalization sessions. Data sheets and edible reinforcers were also used by a participant during the Post-Training Assessment and Generalization sessions. All Baseline, Post-Training Assessment, and Generalization sessions were recorded with a video camera or a laptop equipped with a built-in camera.

Research Design and Dependent Variable

We used a single-subject, modified, multiple-baseline design across a pair of participants, replicated across four pairs, to evaluate the effectiveness of the ABLA-R SIM. In order to assess whether or not a tester is correctly administering the ABLA-R to a testee, Martin et al., (2011) developed the ABLA-R Tester Evaluation Form (ABLA-R TEF). The ABLA-R TEF provides a summary of steps to follow when testing each of the six levels of the ABLA-R. The summary for assessing ABLA-R Level 3 is presented in Figure 1. The ABLA-R TEF also provides a tester evaluation form for each level to be used by an observer to determine if a tester is correctly evaluating each level. The tester evaluation form for assessing whether or not Level 3 of the ABLA-R is being applied accurately is shown in Figure 2. Recent research on the ABLA-R TEF has demonstrated that it has high reliability and validity (Awadalla et al., 2014). Specifically, ABLA-R experts rated the importance of each item on the ABLA-R TEF with a mean of 6.7 on a 7-point scale, demonstrating high face validity. Second, trained observers obtained a mean interobserver agreement of 93.9% when using the ABLA-R TEF for live scoring of testers. Third, when testers were assessed before and after receiving training on applying the ABLA-R, their ABLA-R TEF scores were significantly different between the two phases. Finally, the observers’ ABLA-R TEF scores of testers were significantly correlated with subjective ratings of the testers by ABLA experts, demonstrating high concurrent validity.

In this study, in all but two instances, participants’ accuracy in carrying out the ABLA-R was scored live, using the ABLA-R TEF. Only two levels of Participant 1’s Baseline assessment were scored from video.

Procedure

Phase 1: Baseline. A participant received the abbreviated instructions (see Tables 1 and 2) and was allowed 10 minutes to read them before attempting to assess the confederate (role-playing a person with ID) on three levels of the ABLA-R. To decrease the likelihood of practice effects during Baseline, only three levels were selected for each participant to administer. To test a variety of levels within and across participants, the levels for a participant were randomly selected without replacement from four possible pools, and ABLA-R levels that have a very similar set-up were grouped into one pool. Specifically, a participant did not test the confederate on Levels 2 and 3, or Levels 4 and 5 in the same session. Assessing the participants on the same three levels in Baseline and the Post-Training Assessment allowed a direct comparison of a participant’s performance on each ABLA-R level across phases. Across participants, all ABLA-R levels were assessed.

During the Baseline assessments, the confederate, who role-played a person with ID, sat at a table across from a participant. All of the ABLA-R testing materials were placed on the table, along with edible reinforcers, a data sheet, and the Abbreviated Instructions (see
The participant was then instructed to attempt to assess the confederate on each of the three levels previously chosen, to the best of their current ability, while the confederate followed a script for responding. A different script was created for each ABLA-R level, and followed for every participant. All scripts included a mixture of errors and correct responses that a confederate would perform, and whether the confederate would “pass” or “fail” differed for each level.

Phase 2: Training. Although the ABLA-R SIM is self-instructional, the procedure ensured that the participants followed all direc-

Summary of Steps for a Tester to Follow When Testing Level 3 - Visual Discrimination

Initial Prompting Sequence - Don’t Record Responses

1. Place the can and box in front of the student.

2. **Demonstrate**: Say, "When I say, 'Where does it go?' it goes in here," while demonstrating placing the foam into the can.

3. **Guided trial**: Say, "Let's try together." Take the student's hand while it grasps the foam, say, "Where does it go?" and help the student to place the foam into the can. Give praise.

4. **Opportunity for independent response**: Say, "Now you try. Where does it go?" Give the foam to the student. If the student places the foam into the can, give praise and an edible. If the student makes an error, repeat the prompting sequence. Do not mark the data sheet.

If the Student Responds Correctly on Step 4, you are Ready to Begin Scoring

5. Now look at the data sheet under “Container Position” to see if the can is to be placed on the left or the right side of the box. Place the can on the proper side. (It does not matter if you place the can to your left or to the student's left, as long as you are consistent with who you use as your guide throughout testing.)

6. Give the foam to the student and say, "Where does it go?"

7. If the student places the foam into the can:
   - Give praise.
   - Place a ✓ in the test-trials rectangle for that trial.
   - Repeat Steps 5, 6, & 7 until the student gets 8 correct in a row.
   - Reinforce every correct response with praise and an edible.

8. If the student places the foam into the box:
   - Say, "No. That's not where it goes."
   - Shade the test-trials rectangle for that trail.
   - Do the three steps of the error correction procedure.
   - On the opportunity for an independent response, record either a ✓ or shade an error correction rectangle for that trial.
   - Continue error correction until a correct response occurs on an opportunity for an independent response.
   - Return to Step 5.

9. Continue until:
   - A pass occurs (8 correct test trials in a row).
   - A fail occurs (8 total errors).

Figure 1. Summary of Steps to Follow When Testing Level 3, from the ABLA-R Tester Evaluation Form. (Reprinted with permission from Martin et al., 2011.)
Participants were advised to highlight the answers to the questions in the Study Exercises in the manual. Photocopies of the Study Exercises in the manual were given to the participants who were asked to write their answers to the questions in the Study Exercises on the photocopies provided. We collected the photocopied Study Exercise at the end of each chapter after a participant had written in his/her answers to the questions. When a participant had completed the manual, he/she was asked to write a mastery test consisting of 22 questions randomly selected from all chapters. A participant was asked to re-study and re-write the answers to any questions that he/she did not answer correctly. The manual also includes three exercises instructing a participant to role-

### Table: Form to Evaluate an ABLA-R Tester Testing Level 3

<table>
<thead>
<tr>
<th>Initial Prompting Sequence</th>
<th>Name of Tester:</th>
<th>Evaluated By:</th>
<th>Client’s Initials:</th>
<th>Notes:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Proper set-up</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Initial demonstration:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. “When I say, 'Where does it go?' it goes in here”</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Demo</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Initial guided trial:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. “Let’s try together. Where does it go?”</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Guidance</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Praise</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Initial Opp. for Ind. Res.:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. “Now you try. Where does it go?”</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Praise and edible for correct</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. “No, that’s not where it goes” for error</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. If error:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>i. Demo</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ii. Guided Trial</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>iii. Opp. for Ind. Res.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Test Trials

<table>
<thead>
<tr>
<th>Trial Number*</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
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<td>5. Test trials:</td>
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<td>b. “Where does it go?”</td>
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<td>c. Praise and reinforcer for correct</td>
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<td>d. “No, that’s not where it goes” for error</td>
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<td>iii. Opp. for Ind. Res.</td>
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*Items 5a, 5b, 5c and 6 apply to the first attempt at a trial resulting in a correct response. Items 5a, 5b, 5d, 5e, and 6 apply to the first attempt at a trial resulting in an error. If an error is made on subsequent attempts at a trial, only Items 5d, 5e (i, ii, iii) and 6 apply.

Scoring for Level 3: Total Items scored = Total items scored correctly =

![Figure 2. Tester evaluation form for Level 3 of the ABLA-R, from the ABLA-R Tester Evaluation Form (reprinted with permission from Martin et al., 2011).](image-url)
play administering the levels of the ABLA-R with an imaginary or actual partner. For these exercises, an experimenter played the role of the testee during practice role-play of the ABLA-R, but no feedback was given to the participants regarding their performance.

Phase 3: Post-training assessment. After a participant studied the ABLA-R SIM, a Post-Training Assessment was conducted. In the Post-Training Assessment, the participant attempted to teach the confederate, role-playing an individual with ID, the same three levels of the ABLA-R as in Baseline. For the second participant in each pair who underwent two Baseline sessions, the three levels from the first Baseline session were tested. The Post-Training Assessment procedure was the same as in Baseline, except that the participants were only allowed to refer to a copy of Table 2 from the Abbreviated Instructions used during Baseline, not the entire instructional package.

Phase 4: Generalization. All participants who scored a mean of 90% across three levels in the Post-Training Assessment, with at least 80% accuracy on each level, also conducted a full ABLA-R session with an adult with ID. The same materials were used as in the Post-Training Assessment, except for the reinforcers given to the participant with ID. Prior to beginning the Generalization session, direct-care staff who cared for the participant with ID completed a short questionnaire indicating what types of edibles or activities were typically reinforcing for the participant, in addition to any health issues or dietary restrictions to be considered. At the beginning of a Generalization session and frequently throughout the session, the student participant and the researchers conducted a preference assessment by offering the participant with ID a choice of edibles and asking the participant to select one. A selected edible was used as a reinforcer during the ABLA-R assessment. The student participant began administering the ABLA-R from Level 1 and continued until the participant with ID failed a level.

Inter-Observer Agreement (IOA)

To assess the IOA on participants’ ABLA-R performance, two trained experimenters independently scored 100% of the sessions from live observation using the ABLA-R TEF, with one exception. As stated previously, two levels of Participant 1’s Baseline were scored from video. An agreement occurred when both observers scored an item the same (i.e., both scored an item as correct or both scored an item as incorrect). A disagreement occurred when the observers scored an item differently from each other (i.e., one scored the item as correct and the other scored it as incorrect or vice versa). Percent IOA was computed for each observed session by dividing the number of agreements by the number of agreements plus disagreements and multiplying by 100% (Martin & Pear, 2011). The mean percent IOA across all phases and sessions was 93.85% (range: 67.00%–100.00%).

Procedural Integrity (PI)

The procedural integrity of 68% of sessions was scored from live observation by a trained observer, which included at least one session during each phase of the study across participants. For each observed session, the observer used a checklist to record whether the experimenter followed the procedure as planned. Procedural integrity was 100% for all observed sessions. Also, during the Training phase as described previously, we increased the likelihood that participants utilized the training materials as intended by requiring them to pass a mastery test and to participate in three role-playing exercises.

Results

The effects of the ABLA-R SIM on participants’ accuracy in administering the ABLA-R are shown in Figure 3. Each graph depicts the performance of a pair of participants, measured by percentage correct on the ABLA-R TEF, on each ABLA-R level administered across sessions and phases.

Participants scored 23% mean ABLA-R accuracy in Baseline (range: 12%–43%). After mastering the ABLA-R SIM, participants administered the ABLA-R with 83% mean accuracy during a Post-Training Assessment (range: 62%–96%), for a 60% mean improvement. Five out of eight participants achieved mastery (90%) in a Post-Training Assessment and participated in Generalization, where the mean ABLA-R accuracy score was 91% (range: 75%–96%).
The average amount of time that participants required to master the ABLA-R SIM was 2 hours and 43 minutes (range: 1h 35 min – 4h 47 min), which included time spent reading the manual and engaging in the role-play practice exercises with a partner.

Based on the single-case design visual-inspection guidelines described by Martin and...
Pear (2011), the results show high internal validity. First, as can be seen in Figure 2, ABLA-R accuracy scores were relatively stable across Baseline sessions for all participants except P3. Second, there was a large, immediate effect visible in the graphs from Baseline to Post-Training Assessments for all participants with zero overlapping points. Third, the modified multiple-baseline design across a pair of participants, replicated across four pairs, clearly demonstrates experimental control of the treatment over the dependent variable.

Discussion

The purpose of this study was to examine the effectiveness of the ABLA-R SIM for teaching participants how to correctly administer the ABLA-R to individuals with ID. During Baseline and Post-Training assessments, eight participants were assessed for their accuracy in administering the ABLA-R to a confederate, role-playing a person with ID. All eight participants showed a large increase in performance after studying the ABLA-R SIM, from a mean ABLA-R accuracy in Baseline of 23% to a mean of 83% during the Post-Training assessment. Moreover, the five participants who participated in a generalization assessment, and administered the ABLA-R to an individual with ID, demonstrated a mean ABLA-R accuracy of 91% during Generalization. Also, the amount of time required by participants to master the ABLA-R SIM was relatively short compared to the amount of time required to master DeWiele and Martin’s (1998) self-instructional manual on the original ABLA, described earlier. These are important findings for treatment facilities that will potentially implement the ABLA-R SIM to train their employees to administer the ABLA-R. A training tool that requires the least amount of time yet effectively trains employees is desirable for two important reasons: (a) a training tool that requires a minimal time commitment results in less cost to train employees, and (b) a short training time allows quick implementation of trained individuals’ skills in the workplace and community which may improve the effectiveness of treatment programs for individuals with ID and children with autism. Overall, these results provide the first demonstration that the ABLA-R SIM has considerable potential for teaching individuals how to administer the ABLA-R.

As indicated in Figure 3, although all participants showed a large increase in performance following studying of the ABLA-R SIM, P2, P3, and P5 did not achieve the mastery criterion of 90%. The lower performance of these participants following Training occurred because of what might be considered as relatively minor errors in administering the ABLA-R. For example, when administering the initial prompting sequence at the beginning of Levels 3 and 5 on each trial, the manual prompts the tester to ask the testee, “Where does it go?” and then to hand the manipulandum to be placed in a container. However, when administering Level 3 to a confederate, P2 consistently asked, “Where does the piece of foam go?” instead of “Where does it go?” For the purpose of consistent scoring across participants in this study, such a deviation in instruction was considered an error. However, in clinical practice, such a deviation would be quite acceptable. Future revisions of the ABLA-R SIM should address the items of the ABLA-R TEF for which some of the participants achieved a low score, perhaps by providing examples of variations of instructions that are acceptable when testing items, and perhaps by providing additional prompts to the tester with respect to items that tended to be performed incorrectly in the Post-Training Assessment and Generalization sessions in this study.

There are some limitations to the current study. First, not all participants achieved the mastery criterion. It would have been informative to implement other training tools such as video-modeling or performance feedback in addition to the self-instructional manual for these participants to determine whether further training, and which types of training, would be effective in improving their accuracy in conducting the ABLA-R. For example, researchers evaluated the effectiveness of two self-instructional packages in training parents to conduct discrete-trials teaching (DTT) with their children with autism (Young, Boris, Thomson, Martin, & Yu, 2012). The first package combined a self-instructional manual with a self-instructional video, and was only sufficient in producing a large improvement in DTT accuracy for three out of five parents.
who conducted DTT with their children. The self-instructional manual and video were then combined with role-play and feedback in a second package, which was assessed with five new parent participants. The results indicated that all five parents improved significantly from Baseline to Post-Training in conducting DTT with their children with the second training package. Perhaps a similar type of training package would be beneficial for individuals learning to administer the ABLA-R who do not achieve mastery level after studying the self-instructional manual.

A second limitation is that this study was conducted with university students in a controlled environment, which may limit the external validity to direct-care workers administering the ABLA-R in a clinical setting or a client’s home. This research should be replicated with direct-service providers as participants.

A third limitation of this study is that although the ABLA-R SIM was designed to be self-instructional, contingencies were implemented that reduced the self-instructional nature of the training that participants received. As described in the Procedure, we collected participants’ written answers to the Study Exercise questions in the manual, and participants were given a mastery test after completion of the manual. Also, at the beginning of the training phase, participants were told that they would receive a $40.00 honorarium if they achieved mastery in the Post-Training assessment. These contingencies were applied in an attempt to improve the internal validity of this study. Research should examine whether the ABLA-R SIM is effective without these added contingencies.

In summary, the current research provides an initial demonstration that the ABLA-R SIM is a time-efficient and effective training tool for teaching individuals how to administer the ABLA-R. All eight participants showed a large improvement in accuracy of administering the ABLA-R when assessing a confederate, following a relatively short amount of training time. Moreover, the five participants who met 90% mastery were able to competently administer the ABLA-R to test an individual with ID. The results of this study suggest that minor revisions might be made to the ABLA-R SIM, and researchers are encouraged to replicate this study with direct-care workers as participants.

References


Martin, G. L., & Yu, C. T. (2000). Overview of research on the Assessment of Basic Learning Abil-


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