A Critical Analysis of Conventional Descriptions of Levels Employed in the Assessment of Basic Learning Abilities

Ian Stewart

National University of Ireland, Galway

John McElwee

Private Consultant, Pennsylvania

Siri Ming

Private Consultant, Maryland

The Assessment of Basic Learning Abilities (ABLA; e.g., Kerr, Meyerson, & Flora, 1977) is a tabletop-based protocol employing manipulables that is used to gauge whether individuals with severe developmental disabilities can learn to perform a series of discrimination tasks of varying levels of difficulty. Empirical research suggests that the ABLA is useful in terms of predicting performance in several important domains, including educational and vocational activities and formation of equivalence classes and language (Doan, Martin, Yu, & Martin, 2007; Marion et al., 2003; Martin & Yu, 2000; Vause, Martin, Yu, Marion, & Sakko, 2005). Furthermore, a number of extensions of the ABLA have also been proposed (e.g., Sakko, Martin, Vause, Martin, & Yu, 2004), and research suggests that these can increase the utility of the basic protocol.

As an assessment tool based on the sequential progression of discrimination skills and the development of increasingly complex forms of stimulus control, the ABLA has the potential to be important for translational research (see McIlvane, 2009). However, for research using

this or similar protocols (e.g., Moran, Stewart, McElwee, & Ming, in press) to proceed effectively and efficiently, and to facilitate bidirectional influence between laboratory and applied research, there must be consistency in the terminology as well as the methods used. Despite its predictive utility, however, the technical description of the tasks involved in the procedure itself is one aspect of the ABLA research that is less than satisfactory. Precision in the use of terminology is critically important and a hallmark of behavior-analytic psychology (see, e.g., Chiesa, 1994). As we argue in the current article, the conventional labels used for levels of the ABLA are inaccurate and therefore potentially misleading, and this leads to difficulties in interpreting applied research on the ABLA from the perspective of basic research on stimulus control and in extending the results of research on the ABLA to other applications.

We should make it clear that we are not suggesting that it is the categories of behavior actually targeted by the ABLA that are inappropriate. The predictive success of the protocol suggests that the types of behaviors actually assessed provide an appropriate set and range for many assessment purposes. Instead, we simply suggest that, in the interests of communication, each of the levels be described in terms of the

Address correspondence to Ian Stewart, School of Psychology, St. Anthony's Building, National University of Ireland Galway, Galway City, Republic of Ireland (e-mail: ian.stewart@nuigalway.ie).

TABLE 1

Conventional and suggested alternative descriptions of levels employed in the assessment of basic learning abilities. The conventional descriptions are those used in a peer-reviewed article by Vause, Yu, and Martin (2007)

ABLA level	Conventional description	Suggested alternative description
1	Imitation	Simple operant
2	Position discrimination	Simple simultaneous visual discrimination
3	Visual discrimination	Simple simultaneous visual discrimination (not based on position)
4	Match to sample	Visual conditional discrimination involving similarity of color and shape across sample and comparisons
5	Auditory discrimination	Auditory–visual conditional discrimination
6	Auditory–visual combined	Auditory–visual conditional discrimination (not based on position)

type of behavior actually targeted rather than being named for a functionally different form of responding.

In the current article, we offer a critical analysis of the conventional descriptions of the ABLA tasks that have been provided in published articles on the protocol since it was first developed. Specifically, we will cite the descriptions provided in a recent review of ABLA research by Vause, Yu, and Martin (2007) as representative of the descriptions typically employed in the ABLA literature. As we go through each level, we will critique the description of that level and offer a more technically accurate alternative (see Table 1 for a listing of conventional and suggested alternative descriptions of ABLA levels).

The basic materials used in the ABLA include a large yellow can (about 15 cm diameter, 17 cm high) a large red box (about 14 cm by 14 cm by 10 cm), a small yellow cylinder (about 4 cm diameter, 7 cm high), a small red box (about 5 cm by 5 cm by 5 cm), and a small gray piece of foam (about 5 cm diameter). The procedure involves six levels, as follows.

Level 1 (“imitation”) requires that the individual respond to the tester by placing the foam into either of two

containers presented alone on any trial after the tester has done the same. As with each of the other levels, the tester supports the assessed behavior by using a procedure in which he or she first demonstrates the behavior, then provides a guided trial and then allows the individual to make the response on his or her own. Despite the label, this level does not test for imitation, because it fails to look for a generalized imitative repertoire (see Holth, 2003). The assessed behavior in this case is probably best characterized as a simple operant response (e.g., Millenson & Leslie, 1979, p. 39), because it does not appear to be under the control of a discriminative stimulus as such. It might be suggested that a contextual event or feature (e.g., the experimenter’s placement of the foam in the container) could constitute a discriminative stimulus; however, one could not conclude that this control was in operation unless it could be clearly shown that the client was responding differentially in the presence versus the absence of the suggested discriminative stimulus.

Before proceeding in our critique, we should address one possible counterargument that might be made in relation to the above suggestion or some of the remaining ones: The suggested technical language and

distinctions might be unnecessary or even counterproductive in the context of communication with nonexperts. For example, to a layperson, Level 1 does look like imitation; thus, it might seem easier to describe it to them as such. However, although it may indeed be the case that nontechnical language is sometimes more useful when communicating with laypeople, our critique pertains to the use of terminology among scientific experts in scientific contexts (e.g., in published peer-reviewed journal articles).

In Level 2 (“position discrimination”), the individual is presented on each trial with a yellow can and a red box whose relative positions do not change across trials. He or she must place the foam into the former. Although the appropriate response in this case is referred to as positional discrimination, a correct response need not be based on position but could be based on other features of the two stimuli involved (e.g., color or shape). This task might be described more precisely as a simple simultaneous visual discrimination in which multiple physical dimensions might provide stimulus control. Level 3 (“visual discrimination”) is similar to Level 2, except that the yellow can and red box change positions (i.e., left or right) on random trials. Hence this task might be described as a simple simultaneous visual discrimination in which multiple physical dimensions with the exception of position might provide stimulus control.

In Level 4 (“match to sample”), the individual is presented with either the yellow cylinder or the red cube as sample and the yellow can and red box as comparisons, and is required to place the yellow cylinder in the yellow can and the red cube in the red box. If the term *match to sample* being used here is meant to refer to nonarbitrary relational responding, then, as in the case of the label used to describe Level 1, this is inaccurate

because there is no testing for generalization (Stewart & McElwee, 2009; see also Sidman & Tailby, 1982, for the distinction between procedure and process in the context of matching-to-sample tasks). We suggest instead that a successful performance on this level demonstrates a visual conditional discrimination involving similarity of color and shape across the sample and comparison stimuli. In this and later levels, a successive discrimination between sample stimuli and a simultaneous discrimination between comparison stimuli are required. The learning of a task such as this might be facilitated if the individual being assessed has a repertoire of nonarbitrary relational responding, but this task in itself would be inadequate as a test of this repertoire without employing a number of different colors or shapes in the test.

In Level 5 (“auditory discrimination”), the individual is presented with a yellow can and a red box in fixed positions and is required to place the foam into the appropriate container when the tester randomly says either “red box” (in a high-pitched and rapid style) or “yellow can” (in a low-pitched drawn-out style). Although it might be argued that the term *auditory discrimination*, as used in relation to this task, is not technically incorrect, we suggest that the term is at least imprecise. From a technical perspective, this is an example of an auditory–visual conditional discrimination in which multiple physical dimensions might provide stimulus control. This task differs from the previous (Level 4) task in that it is cross-modal. However, from a stimulus control point of view, the key difference is that there is no physical similarity across the sample and comparison stimuli.

Level 6 (“auditory visual combined”) is similar to Level 5 except that the position (i.e., left or right) of the comparison stimuli varies. This task is similar to that used in Level 5 in that it is an example of an

auditory–visual conditional discrimination in which multiple physical dimensions might provide stimulus control; however, analogous to the relation between Levels 2 and 3, in this ostensibly more advanced level, position is eliminated as a possible source of stimulus control. Because position is the only source of control omitted in Level 6 compared with Level 5, this suggests that there is little difference between these two levels; indeed, the evidence appears to support this contention (Martin & Yu, 2000).

This observation provides a good example of the importance of the use of precise terminology. An analysis of these stages using the currently suggested terminology would make the functional similarity of Levels 5 and 6 more immediately apparent and allow the development of a more streamlined and efficient procedure without the need for extensive empirical testing. Another analogous example is found in relation to work carried out by Sakko et al. (2004), who assessed 23 developmentally disabled participants using an additional visual–visual nonidentity matching level. In this level, participants were required to match a silver-colored piece of wood in the shape of the word *BOX* (all uppercase letters) to a large red box and a purple piece of wood shaped into the word *Can* (upper- and lowercase) to a large yellow can. This level was administered in the same way as for conventional ABLA levels, and as in ABLA Levels 4 and 6, the left–right positions of the box and can comparisons were varied randomly.

Results seemed to show that the difficulty level of this additional level is higher than Level 4 but below that of Level 6 (see also Ward & Yu, 2000). From a stimulus control perspective, this new level is a visual conditional discrimination similar to Level 4 but involves no obvious physical similarity across the sample and comparison stimuli. The fact that

there is a lack of physical similarity means less support for learning the correct responses and hence the increased difficulty compared with Level 4 (see, e.g., Saunders & Spradlin, 1989; Zygmont, Lazar, Dube, & McIlvane, 1992). The fact that the stimuli are all visual and thus consistently present throughout the task may be the reason that this task is less difficult than Level 6, in which the samples are auditory stimuli and are therefore not present for the duration of the task. Further research might be needed to investigate this possibility.

As in the case of explaining the lack of empirical difference between Levels 5 and 6, the theoretical analysis just provided in relation to the VVNM is facilitated by the precision of the suggested labeling. This indicates the importance for protocols such as the ABLA of providing accurate and precise labeling. By employing more technically accurate and precise labeling, the nature of the variables that affect performance is more readily apparent, with direct consequences with respect to obtaining prediction and influence over behavior. We believe that increasing the accuracy and precision of the labels used to describe this or analogous protocols can improve their potential by increasing their predictive and explanatory power in practical and research applications as well as by facilitating their further development.

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